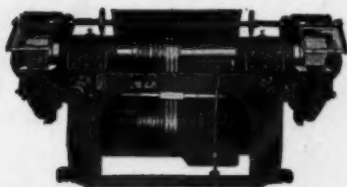


Hitchcock's Machine Tool Blue Book

NOVEMBER, 1931

TWENTY-SIXTH YEAR

Standard High Speed Snagging Grinder



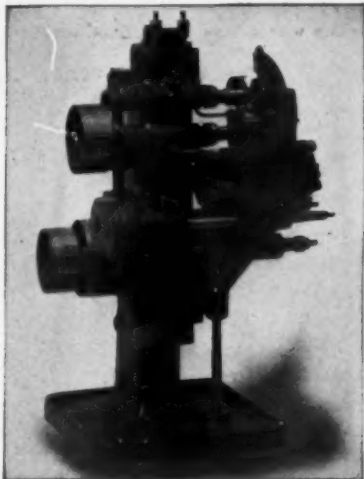
- For use with Redmanol high speed ring wheels of 20", 24" and 30" diameters, 10" or 12" hole, running at 9000 SFPM.
- Motors, 7½, 10 and 15 HP sizes.
- General Electric Ball Bearing Motor and G. E. Push Button Control.
- Shaft 4" Diameter, Nickel Steel.
- Bearings, 4 SKF Heavy Duty.

The Standard Electrical Tool Co.
1948 W. 8th Street, Cincinnati, Ohio

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

"SUPERIOR"

Double Spindle Automatic MILLING MACHINE



**Allows
various
designs of
fixtures to
be used in
order to
handle the
different
kinds of
work to
advantage**

**Also made
with
Single
Spindle**

SUPERIOR Double Spindle Automatic Milling Machine is shown with special fixture for holding piston rings while sawing them apart. Work is clamped and unclamped by movement of table. Dwell of table can be regulated so operator has ample time to load and unload. Table feed can be disengaged at any time and table and fixture operated by hand for setting up a job. Graduated dials are provided for adjusting screws.

Spindles are hardened and ground and run in bronze bearings in a bath of oil. All gears are hardened steel. Main drive and other shafts mounted on anti-friction bearings. Spindle speeds changed by pulleys and feed of table through change gears. This machine is designed for rapid, accurate production and can be set-up and changed from one job to another very quickly. Write Today for Complete Information.

Superior Machine & Engineering Co.
1920 Ferry Park, 2-1 2-1 Detroit, Mich.

Hitchcock's Machine Tool Blue Book

Selected
Circulation

25,500
Monthly

NOVEMBER, 1931

TWENTY-SIXTH YEAR

Do You Follow
Your Competitor ?

Or Have You a Mind of Your Own ?

Some manufacturers of metal-working machinery have offered to use good space in the "Blue Book" if we would give them the exclusive privilege in their particular line. Which, of course, we refused to do.

Others have told us they would not advertise in the "Blue Book" unless we had some of their competitors.

Consistency? Hardly. But we believe both are wrong.

Instead of being guided by what his competitors do, the man who does the most and best advertising he can for the cost is the one who wins out.

To the manufacturer of metal-working machinery the "Blue Book" gives more practical sales-making advertising per dollar of cost than any other publication on earth.

Write to the publishers for complete information

Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

Consult the Classified Finding Index for your requirements

Don't Forget—

**Wood, Fibre, Rubber,
Paper, Mica, Bakelite**

as well as the
ordinary met-
als can be
drilled to ad-
vantage on the
**Leland-Gifford
Super-
High-Speed
Ball Bearing
Drilling
Machine**



**Spindle
Speeds
Up to
10,000
R. P. M.**

**Write us about this Drill to speed
up your drilling operations.**

Ask for Bulletin No. 502

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

**BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER**

AGENTS

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| F. E. Satterlee Company | Minneapolis |
| Smith Booth Usher Co., | Los Angeles |
| Herberts-Moore Machinery Co., | San Francisco |
| F. F. Barber Machinery Co. | Toronto |

LELAND - GIFFORD

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

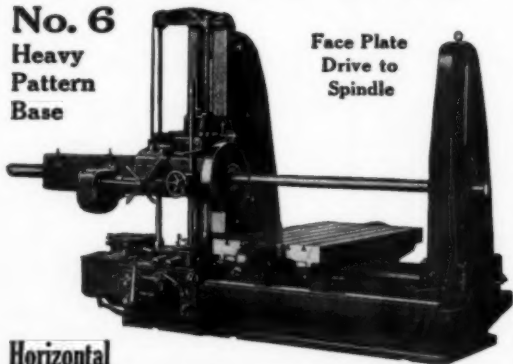
FOOTBURT

The New Improved **DEFIANCE**

No. 6

**Heavy
Pattern
Base**

**Face Plate
Drive to
Spindle**



Horizontal

Boring, Milling, Drilling and Tapping Machine

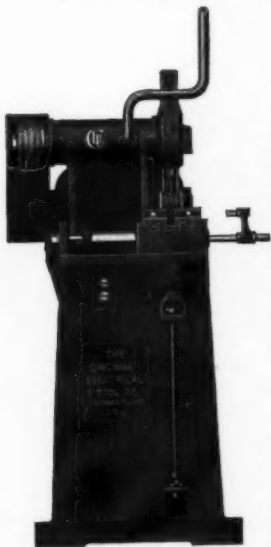
The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**

The Cincinnati HIGH SPEED CUT-OFF MACHINE



For Speed with SAFETY

THE CINCINNATI cuts steel alloys, brass, aluminum, copper, fibrous materials, etc., of any size or shape up to 2 1/4" inclusive. Makes cuts, straight or angle, easily and quickly up to 45 degrees, using same vise for various cuts. 12 or 14" diameter abrasive wheels operate at a peripheral speed of 16,000 S.F.M. Fully guarded.

"A Second or Two— and the Cut is Through!"

A chart, showing the remarkably short time needed to cut various alloys and metals, is yours on request. You will also be surprised at the *number* of cuts the machine will make. Send

for these interesting figures and compare them with your own records.

*Just drop us a line today—and
we'll forward complete
information*

BUILDERS OF
Ball Bearing
Electric Drills
Screw Drivers
Nut Setters
Tappers
Valve Grinders
Tool Post Grinders
Floor Buffers
Bench and
Floor Grinders

**THE CINCINNATI
ELECTRICAL TOOL CO.**
2700 Madison Road, Cincinnati, Ohio

**Taylor & Fenn Belt Driven
No. 12 Spring Press**



**UNIFORM BLOW
SPRING PRESSES**

**Are made in
three sizes,
with either
single or
double action**

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

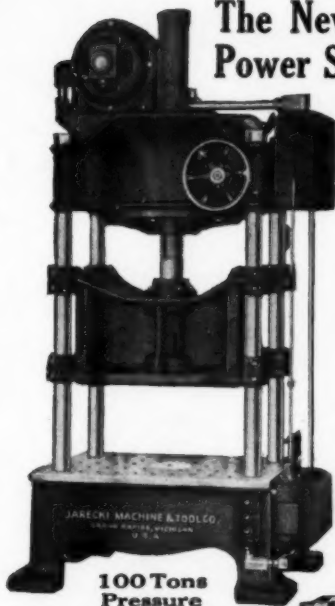
**The Taylor & Fenn Co.
Hartford, Conn., U. S. A.**

The New Type CC Power Screw Press

The ONE MAN Machine

EASY to operate—your diemaker requires no help in handling dies. Push button type switch, conveniently located, enables operator to start, stop or reverse ram without taking eyes off work being done. Rigid, powerful—delivers 100 tons pressure. Perfect alignment eliminates any tendency to gouge or nick dies—insuring perfect work. No wedging or prying. Operated by 10 h. p. motor.

Write for Circular



**100 Tons
Pressure**

*Also Hand Screw Presses
25 and 80 Ton Pressures*

Surface Grinder

A substantially built machine that is powerful, rigid and accurate. Equipped with graduated dials and non-vibrating wheel.

Details and price on request

**JARECKI MACHINE
AND TOOL CO.**

Department A

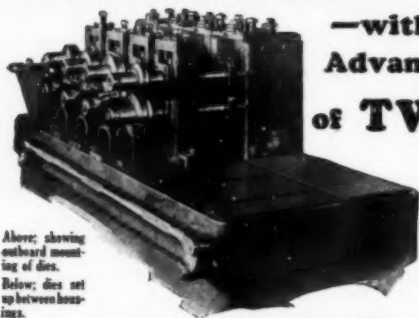
GRAND RAPIDS,

MICHIGAN



One Machine

—with the
Advantages
of **TWO!**



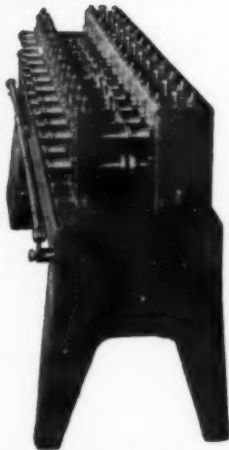
Above; showing
outboard mounting
of dies.

Below; dies set
up between housings.

MCKINNEY Roll-Forming machines offer every advantage of the overhung-roll type as well as the double-housing type. Special design of McKinney spindle housings allow roller dies to be set up either between the housings, or by sliding the outer housings back, on the exposed ends of the spindles, according to the needs of the job. This feature also often permits as many as three jobs to be set up on the same machine, thus greatly reducing the time lost in tearing down much-used set-ups to run special jobs.

If your products can be roll-formed, the exclusive features of McKinney machines deserve your investigation.

*Write for bulletin or submit
samples without obligation.*



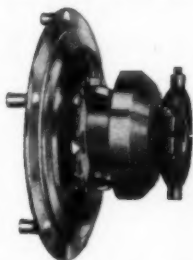
The McKinney Tool & Mfg. Co.

1684 Arabella Road,

1-1

Cleveland, Ohio

When fewer clutches are sold
CONWAY is specified more



BECAUSE — purchases
are well considered, and
the Conway Clutch with
all the features and
none of the faults of
any clutch built, is

“The last word in Friction Clutches”

Easy Engagement

Instant Release

Drag-Free Idling

Abundant Power

Enclosure

Balance

Centripetal Action

An ideal of starting and stopping in concrete form.

Buy your power transmission equipment on cost
per horse power hour.

The Conway Clutch Co.

1541 Queen City Ave.,

Cincinnati, Ohio

“The Conway Disc is a Splendid Clutch”

KRW "Bench Type" ARBOR PRESS



No. 37D

\$28.⁵⁰

F.O.B. FACTORY
ARCADE, N. Y.

Shipping Weight
140 lbs.

*Write for special
circular, just off
the press, cover-
ing KRW Hy-
draulic Arbor
Presses, air and
oil operated.*

Every shop needs one of these presses to handle hundreds of jobs now done with vises and sledge hammers. They soon pay for themselves in time and labor saved.

The K R W "Bench Type" Arbor Press is oversize in every particular. The throat is extra deep, taking work up to 13 inches in diameter. The ram is $1\frac{1}{2} \times 1\frac{1}{2} \times 17$ inches. Largest arbor is $1\frac{1}{8}$ inches. The height is 22 inches. Can be conveniently mounted on end of work bench, as it takes up a space of only 8x20 inches.

K. R. WILSON

10-16 Lock Street, Buffalo, N. Y., U. S. A.

EXPORT DEPT.
126 Liberty St., New York

WEST COAST BRANCH
647 Mateo St., Los Angeles

"The Good Mechanic's Choice" Since 1897

HERE'S the latest and finest in electric hammers—and bearing the famous old U. S. mark, your guarantee of genuine efficiency, economy and durability.

POWERFUL — strikes 4000 blows per minute up to one inch with the ease and efficiency of hammers several times the price.

DURABLE — driven by any light type half-inch electric drill through a rugged flexible shaft, relieving the motor of the usual destructive jarring. Hammer member made of finest Swedish steel. Highest grade ball and roller bearings throughout.

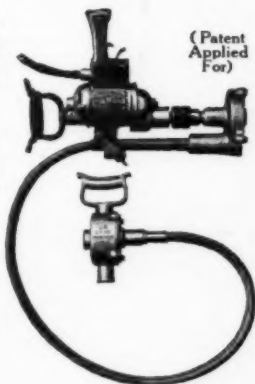
LIGHT WEIGHT — *only nine pounds*, by far the lightest made, and easiest to handle.

At your distributor's with U. S. half-inch special drill, **\$89.**
\$137. Without drill, only **\$89.**

New

U. S. — Ohio Electric

Hammer



The United States Electrical Tool Co.

2461 W. Sixth St., Dept. D. Cincinnati, Ohio

Canadian Division—MAPLE LEAF ELECTRIC TOOLS, Ltd.—Toronto

The KELLERFLEX



The KELLERFLEX machine when used with burs or rotary files will give most satisfactory results. There are various speeds to enable a $\frac{1}{8}$ -in. bur to be used as effectively as a 1-in. bur. This machine and equipment will prove indispensable for removing solder on sheet metal or weld marks on structural iron, castings, etc. They also may be used in the foundry for trimming and cleaning up bronze and aluminum castings, as well as finishing of patterns.



The illustration shows the use of a bur in removing imperfections on a bronze casting.

Let us send you our catalog and recommendations both for machine and burs as adapted to your individual needs.

KME



THE PRATT & WHITNEY COMPANY

Keller Division, 58-A Washington St., Brooklyn, N. Y.

STOCK AT CHICAGO AND BROOKLYN

SAFE VALVE COUPLINGS

Quick As Wink

The quickest--safest--most reliable hose couplings and valves on the market

3
YEARS
GUARANTEE

Positive control of the air anywhere between the compressor and tool. Push valve sleeve forward--air is on. Pull sleeve back--air is off. Cannot be uncoupled unless air is off. No leaks. No sticking. No trouble. All steel construction. Major parts of "Stainless." Stand abuse and operate under all conditions.

Time and Money savers wherever used. Ask for information and prices.



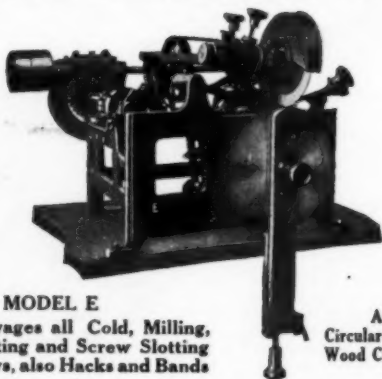
Quick As Wink
CUSHION
ABRASIVE
WHEELS

THE MODERN WAY
TO BUFF & POLISH

C. B. HUNT & SON
SALEM, OHIO

WARDWELL

Combination Grinder
—for—
**BANDS HACKS
AND CIRCULAR SAWS**



MODEL E

Salvages all Cold, Milling,
Slitting and Screw Slotting
Saws, also Hacks and Bands

And all
Circular and Band
Wood Cutting Saws

**One years saw purchases can be
made to last from six to eight years.**

Write for catalog.



The Wardwell Manufacturing Co.

Manufacturers of the largest line of Saw Filers made in U. S. A.

3165 Fulton Road,

Cleveland, Ohio

Marvel Metal Band Saw No. 8

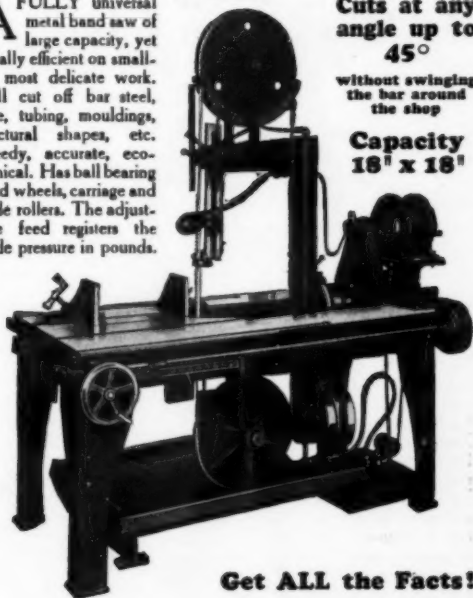
**Ready for ANY Job—Large or Small
Simple and Easy to Operate**

A FULLY universal metal band saw of large capacity, yet equally efficient on small—est, most delicate work. Will cut off bar steel, pipe, tubing, mouldings, structural shapes, etc. Speedy, accurate, economical. Has ball bearing band wheels, carriage and guide rollers. The adjustable feed registers the blade pressure in pounds.

**Cuts at any
angle up to
45°**

**without swinging
the bar around
the shop**

**Capacity
18" x 18"**



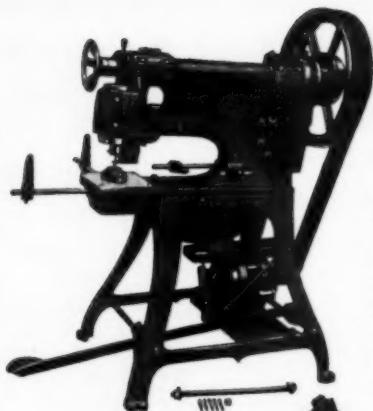
Get ALL the Facts!

Write for Illustrated Folder Today

ARMSTRONG-BLUM MFG. CO.

341 N. Francisco Ave.,

CHICAGO, ILL.



No. 20

For duplicating work by the use of Horse Shoe Gauges, Templet Sheets can be made to punch sheets with accuracy and speed not obtainable with any other method of punching. Capacity $\frac{1}{4}$ " hole in $\frac{1}{4}$ " iron.

No. 19

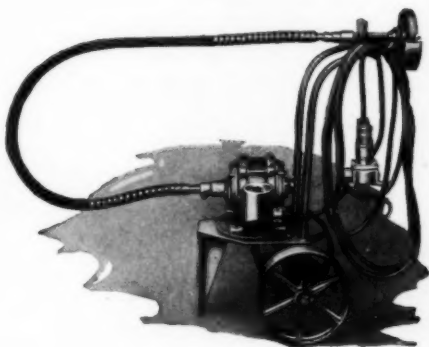
Ball Bearing, accurately designed square slide built like a Punch Press for irregular shape dies. Easily operated balanced lever can be moved to the job with ease, saves time, one man machine, capacity $\frac{1}{4}$ " in $\frac{1}{4}$ " iron.



Excelsior Tool & Machine Co.
East St. Louis, Illinois

A Portable GRINDER

**which will withstand *continuous*
HARD GRINDING DUTY!**



1 H.P., 3 Phase, 220 or 440 volts. 3600 R.P.M. at 60 cycle. 40° C. Rise Constant Duty. Nine motor leads are brought out in switch box for ready connection to either 220 or 440 volts. Strong Flexible Shaft. Light Metallic Handle equipped with Standard Ball Bearings. Equipped with 8"x1" grinding wheel. Diameter of spindle at wheel, $\frac{5}{8}$ ". Net weight of Grinder, 155 lbs. Shipping weight, 200 lbs. Can be furnished in single phase 110 or 220 volts A.C. and 110 or 220 volts D.C.

A Sales Representation Is Open in a Few Localities

STOODY COMPANY

MANUFACTURERS

WHITTIER, CALIFORNIA

Wittek Universal Die Sawing and Filing Machine

has many new and improved features



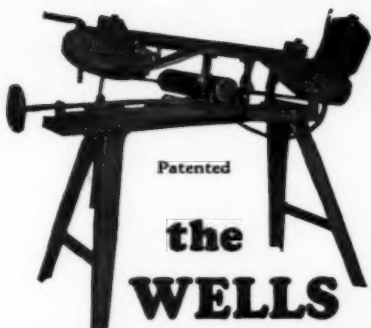
This machine has three speeds with adjustable stroke from 1¼" to 5½". Universal saw and file holders hold any size saw or file. It has roller saw guides above and under the table to guide the saw for accurate sawing. The table tilts 15 degree angle in any direction. Has detachable screw feed, and many other features.

**Made in Bench or Floor Models, with Motor
or Belt Drive. Price \$285.00 and up.**

Ask your Machinery Dealer or write us for Bulletin FH.

WITTEK MANUFACTURING CO.

Dept. H. 4307 West 24th Place, Chicago, Ill.



Patented

the **WELLS** metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

Features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, **tubing**, strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than $\frac{3}{64}$ "—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

A Saw for Production, Maintenance and General Service

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.

Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.



DEPENDABLE

ELCO-SCREWS

REDUCE ASSEMBLY COSTS



Specify ELCO when you want dependable screws—delivered promptly.



Modern production methods, ample warehouses, and ideal shipping facilities enable us to offer our customers this unusual combination of Quality and Service.



MACHINE SCREWS
MACHINE SCREW NUTS
WOOD SCREWS
LAG SCREWS
CAP SCREWS
PIPE PLUGS



Your inquiries will receive prompt, intelligent attention



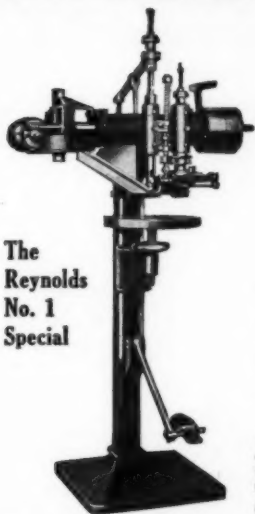
ELCO TOOL & SCREW CORPORATION

1808 Broadway, Rockford, Ill.

"It Pays to Use Good Screws"



For REAL SAVINGS



The
Reynolds
No. 1
Special

Use The Only Automatic Magazine-Fed Machine

That drives short
screws and those
with short bodies
and large heads

Just keep the hopper filled—
no handling of screws beyond
that—a boy or girl can oper-
ate it.

For a good many years Reynolds Automatic MAGAZINE-FED Screw Driving Machines have been driving screws of all kinds for concerns all over the country, at savings of at least 100%.

The No. 1 Special, shown above, handles screws with short bodies and large heads, magazing and driving screws from No. 4 to No. 10 up to $\frac{1}{2}$ " long, to center of a 14" circle. It will pay you in actual dollars and cents to investigate the savings the Reynolds can effect in your shop.

Many other sizes and types for almost any size screw.

Drop us a line, giving dimensions over all of your work, length and gauge of screws used. We'll submit facts and figures showing how to reduce your costs.

The Reynolds Machine Company
Dept. H. H. Massillon, Ohio

Analysis of Circulation of HITCHCOCK'S MACHINE TOOL BLUE BOOK

By Dun and Bradstreet Ratings

(Corrected to September 1st, 1930)

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

| | |
|-------------------------------|-------|
| Exceeding \$1,000,000..... | 1,937 |
| \$500,000 to \$1,000,000..... | 1,486 |
| \$300,000 to \$ 500,000..... | 1,402 |
| \$200,000 to \$ 300,000..... | 1,306 |
| \$125,000 to \$ 200,000..... | 1,892 |
| \$ 75,000 to \$ 125,000..... | 1,827 |
| \$ 50,000 to \$ 75,000..... | 1,558 |
| \$ 20,000 to \$ 50,000..... | 3,190 |
| \$ 10,000 to \$ 20,000..... | 2,132 |
| \$ 5,000 to \$ 10,000..... | 1,604 |

TOTAL to Private Concerns of over \$5,000.. 18,334

Steam and Street Railway Mechanical and
Purchasing Officials, Government and Mu-
nicipal Plants, Technical Schools, Selected
Foreign Importers and Users, Etc.,..... 2,990

TOTAL to Buyers of Known Responsibility.. 21,324

*Concerns quoted in Dun or Bradstreet, but
without Capital Rating..... 2,232

Concerns not yet in either Dun or Bradstreet,
which includes new industries..... 1,424

Concerns rated \$3,000 to \$5,000..... 489

Miscellaneous 217

TOTAL CIRCULATION..... 25,686

*This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

BOX ^{LOAD}LIFTER TRADE MARK ELECTRIC HOIST



1 TON
to
20 TON
CAPACITY

ALL STEEL
SUSPENSION
92 %
MECHANICAL
EFFICIENCY

MOST RUGGED
AND
ECONOMICAL
HOIST BUILT



500 lb.
to
2000 lb.
CAPACITY

BOX TYPE ^{LOW}HEAD ^{ROOM} CRANE

LIFTS ITS LOAD WITHIN 18 IN. OF CEILING

HEAVY DUTY ELECTRIC AND HAND TRAVELING CRANES
MADE IN EVERY SIZE AND TYPE FOR EVERY DUTY

WRITE FOR CATALOG

BOX CRANE & HOIST
CORPORATION

2234 EAST ONTARIO ST., PHILADELPHIA, PA.
REPRESENTATIVES IN PRINCIPAL CITIES.

VANDERBEEK UNIVERSAL JOINTS



Are used in all kinds of machines where high grade Joints are needed. The very highest grade of workmanship goes into our Joints.

We specialize on Joints

for instrument work and light drive as well as airplane use. Hundreds of thousands of Vanderbeek Universal Joints are in daily use.

Write for Prices and State Your Quantities

American Tool Works, Inc.
25 High St., Hartford, Conn., U. S. A.

SPEED SPOT WELDERS

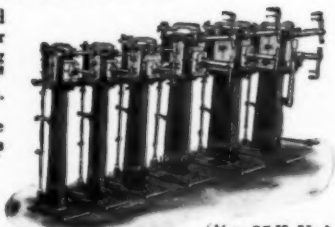
OVER 20,000 IN USE

Made foot-operated and automatic motor drive, for welding from .0005 to $\frac{5}{16}$ " combined thickness.

Welders for Fine Work Priced As Low As

\$55.00

Submit Your Problems



$\frac{1}{2}$ to 35 K. V. A.

EISLER ELECTRIC

763 So. 13th Street,

NEWARK, N. J.

Distributor and Dealer Connections Desired

HARDINGE

COLLETS



We Are Collet Specialists

Collets for Lathes, Hand Screw Machines, Automatic Screw Machines and Milling Machines carried in stock. Prompt delivery made on specials.

Send for Complete Price List

Hardinge Brothers, Inc.
Elmira, N. Y.

FOR the purpose of advertising machine tools and shop equipment the BLUE BOOK is unique. There is nothing else like it. Where else can you find anything to equal it in its combination of

COVERAGE
DIRECTNESS
HANDINESS
EFFICIENCY
and
ECONOMY



*Rates upon application to Hitchcock Publishing Co.,
508 S. Dearborn St., Chicago*

On your 2-wheel Hand Trucks for Safety with Efficiency—use Safety Truck Brakes

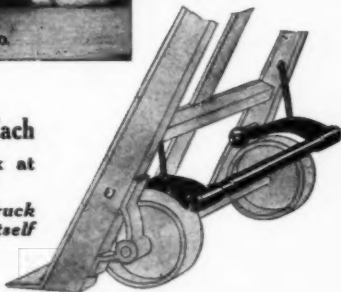


Make the job of Hand Trucking Safe against Truck kick back—no more heels torn from shoes, feet pinched or worse.

Lower hand trucking cost by increasing leverage by as much as 40%.

Adjustable to fit any Truck—no measurements necessary.

Now used by over 10,000 companies.



PRICE: \$4.50 Each

or \$25.00 for six at
Chicago—but

*"The Safety Truck
Brake pays for itself
every week."*

FISHER EQUIPMENT

1281 Caxton Bldg.,

Chicago, Ill.

Improved Thompson Universal Grinder

Self-contained and motor driven, this standard Grinder combines efficient means for the rapid and accurate production of every grinding operation required in a machine shop.

All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

Capacity 12"x36"

**The Thompson
Grinder Co.**

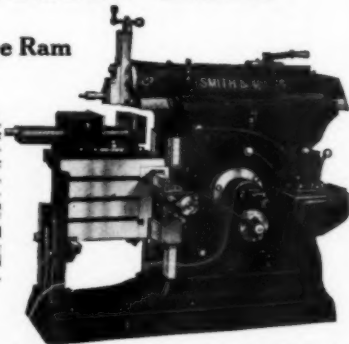
1534 West Main St.,
SPRINGFIELD, OHIO



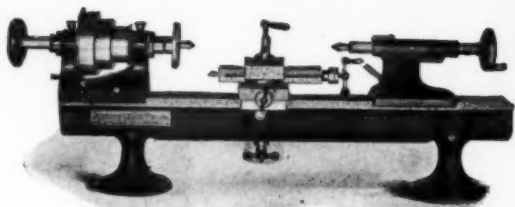
SHAPERS

"V" Type Ram

12", 14", 16",
20", 25" Gear
Box single pul-
ley or motor
drive, also 16",
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.



WADE PRECISION BENCH LATHES

The economy of these lathes is to perform work, within their capacity, to *Better Advantage, More Accurately, at Lower Initial Cost* than on larger and more expensive machines. In fact, for some classes of work there is no substitute for the fine accuracy and convenient operation obtained on Wade Bench Lathes.

Let us know your problems

THE WADE TOOL CO., Waltham, Mass.



SAVINGS
of

65%

with the

COLONIAL Broach Sharpener

Actual production records show it costs 65% more to sharpen broaches on ordinary grinding equipment than it does with a COLONIAL. Why shoulder this extra expense? The COLONIAL is especially designed for sharpening broaches and finishes the teeth and under-cut with great accuracy. Quickly pays for itself and improves the quality of your broaching work.

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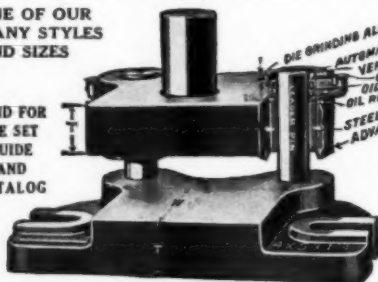
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Automatically Oiled Die Sets

ONE OF OUR
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AUTOMATIC OILER
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THE ONLY MACHINE THAT
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NUMEROUS TYPES FOR ALL
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Round and Flat heads, hollow and cheek rivets
from .008" to $\frac{5}{16}$ " without distortion or breaking
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Noiseless, Fast Riveting with a GRANT



Speed—One rivet per second.

Uniformity—Each rivet is finished to the exact degree of tightness or looseness you require.

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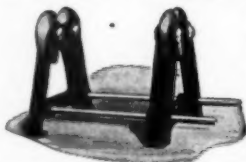
So well adapted to difficult work that no corner is too inaccessible for it to place a rivet. Yet it is so simple in operation that a boy or girl can handle it efficiently.

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Are extremely sensitive and require no leveling—no adjustments—no centers.

Made of quality materials in several sizes to balance everything that revolves up to 24000 lbs. weight. You will find Andersons always ready, always accurate, and lasting in their service.

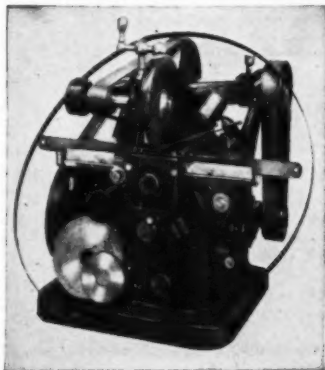
| "Swing" | 20" | 40" | 60" | 72" | 96" | 72" |
|------------------------------------|------|------|------|------|-------|-------|
| Greatest distance bet. standards.. | 20" | 30" | 30" | 66" | 88" | 20" |
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Any of above can be furnished with longer shafts

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Last Longer with Less Upkeep



These machines have self adjusting ball bearings in wheel spindle and self adjusting bronze bearings in work spindle—they need no attention during their life.

This machine will sharpen metal slitting circular saws, power hack saw blades and metal and wood cutting band saws.

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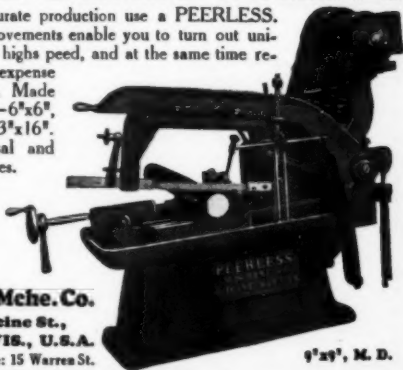
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**Etches-Demagnetizes-
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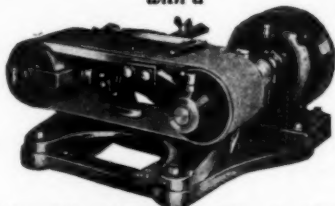
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This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

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An Efficient Drill for the Bench



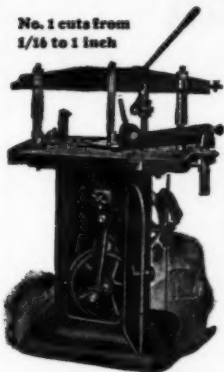
On holes up to $\frac{3}{8}$ ", the Burke No. 222 Bench Drill Press is a really outstanding machine.

It's fast, vibrationless and accurate; a real production tool that turns out a quantity of high-class work at low cost per hole. Construction is of the sturdiest; design modern in every detail. Our catalog contains convincing reasons why the No. 222 is the logical drill for your bench.

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No. 1 cuts from
1/16 to 1 inch



**For a Wide Range
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Cuts keyways in pulleys, gear blanks, ball cranks, crank handles, etc., and does slotting and oil grooving. It is only a matter of seconds to change from one set-up to another. No complicated parts to get out of order, and sturdy construction guarantees a long life. Made in two sizes.

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Interchangeable

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**Change Cutting
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Machine is
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YES, it's possible with the new WILDER Quick Change feature. To remove or install the cutting tool all you do is lift up the knurled chuck. This releases the lock driving plunger allowing the cutting tool to drop out or be easily installed. Use a WILDER and note the increase in output per grind.

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Tool Holders

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Made of drop-forged steel, thoroughly case-hardened. Absorbs heat from cutter, permits heavier cuts, lessens breakage.

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High
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For only a few dollars, a "PROCUNIER" reversible tapping head converts your drill press into a sensitive tapping machine.

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Type B Expanding Clutch

Adaptable and Efficient



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For a comprehensive display of new, up-to-date wood-working machinery and allied equipment, as well as lists of used machinery, consult

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Strand

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$\frac{1}{3}$ H.P.—Three Speeds

Other Types In

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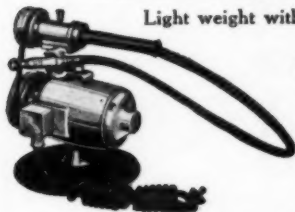
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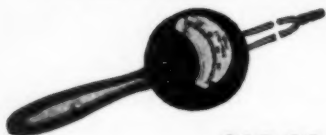
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for molten lead, babbitt, solder, white metal, etc.

A compact, self-contained pyrometer especially suited for measuring the temperature of molten soft metal. Almost instant readings are obtained as the bare thermo-couple is inserted directly into the molten metal or heat zone. Other models, both portable and stationary, for every temperature measuring requirement. *Send for free catalog.*

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STEEL STAMPS



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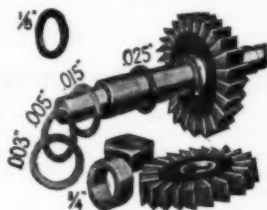
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Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, 1 , $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2 , $2\frac{1}{4}$, $2\frac{1}{2}$, 3 , $3\frac{1}{2}$ and 4 in. and larger.

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Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

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Extra Punches, 20 cents each; extra dies, 30 cents.

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The Walton Tap Extractor

This handy tool has steel fingers which back out the tap *without injuring the threads*. It will save you many hours in the course of a year—paying for itself over and over again. Made in three and four-flute styles.

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With Higher Speed, Less Spoiled Work, Fatigue or Broken Taps



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Send for complete catalog of "Gusher" motor belt and plain drive coolant pumps.

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(See next page)

....., 1931

HITCHCOCK PUBLISHING CO.
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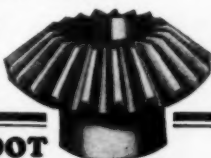


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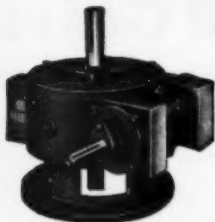
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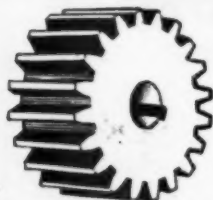
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ALL TYPES AND SIZES

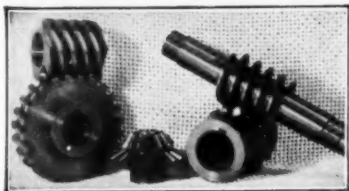
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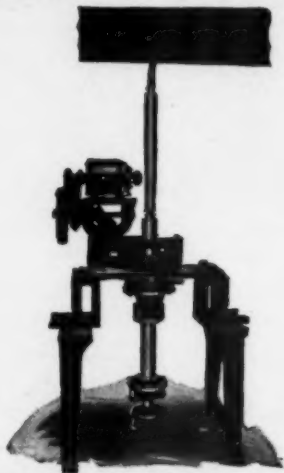


Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

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CHICAGO GEAR WORKS
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The Pedrick Boring Unit

This picture of drilling an overhead beam is only an indication of what the Boring Unit can do. It is intended more for other work than for drilling, but to get the whole story, write for a circular.

The Boring Unit removes the limitations from the portable boring bar, and reaches a field of work that otherwise requires the largest machine tools.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.



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When you purchase twist drills, do you "go shopping" or place your order on the "Cost-per-Hole" Test?

What do we mean by "Cost-per-Hole" Test? Simply that, no matter what you pay for drills, their value depends entirely upon the number of holes each drill can produce, and the cost per hole drilled.

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CLEVELAND

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Eight-speed s
geared headsto
heat-treated ha
wers. Equippe
finished — tak
verses of the lea
—making its ac
for outstanding
most of the recep
large turning t
Rigid bed with
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machines ready to

Regal lathes have to be good—they are subjected to the precision tests of the higher-priced LeBlond machines, and must be worthy of the LeBlond guarantee.

The Regal is made in five sizes, 10" to 18". Prices range from \$275.00 to \$947.00, F. O. B., factory. Sold on easy terms if you wish. Mail the coupon for descriptive literature.

The R.K. LEBLOND Machine Tool Co.
CINCINNATI, OHIO, U.S.A.

THE

REGAL

A GEARED HEAD LATHE

Safe, simple, speedy, accurate, of advanced engineering design—patterned after the LeBlond heavy duty lathes so well known in the industrial field.

IMPORTANT FEATURES

Eight-speed selective geared headstock, with heat-treated hardened gears. Equipped with lead screw—taking the load off the lead screw to insure its accuracy in cutting. Carriage with exceptionally large grinding surface. Headstock with numerous grinding wheels, all of low-alloy steel. Fully equipped with grinding wheels ready to operate.

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A compact, self-contained unit, with all moving parts enclosed. An eight-speed selective geared headstock with the final drive through helical gears. It's a product of over forty years' experience in the building of precision tools, and a knowledge of your needs. A distinct advance over anything in its class, and a valuable lathe for any shop.

THE R. K. LeBLOND MACHINE TOOL CO.

308 Regal Division, Cincinnati, Ohio

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THE



Size—10"
(18" between centers)
From \$275.00



IMPORTANT FEATURES

Eight-speed self-geared headstock, heat-treated hard gears. Equipped feed rod—taking wear off the lead—reducing its acc. for screw cutting. Range with exception large swing out. Rigid bed with numerous cross girths. Close-gained nickel-iron. Lathe is equipped (incl. motor) ready to op.

Regal lathes have to be good—they are subjected to the precision tests of the higher-priced LeBlond machines, and must be worthy of the LeBlond guarantee.

The Regal is made in five sizes, 10" to 18". Prices range from \$275.00 to \$947.00, F. O. B., factory. Sold on easy terms if you wish. Mail the coupon for descriptive literature.

The R.K. LEBLOND Machine Tool Co.
CINCINNATI, OHIO, U.S.A.

THE

REGAL

A GEARED HEAD LATHE

IMPORTANT FEATURES

Eight-speed selective geared headstock, with heat-treated hardened gears. Equipped with lead rod—taking the load off the lead screw and increasing its accuracy in cutting. Carriage with exceptionally fine turning surface, guided with numerous cross-ribs, all of hardened nickel steel. Lathe is fully equipped (including motor) ready to operate.

Safe, simple, speedy, accurate, of advanced engineering design—patterned after the LeBlond heavy duty lathes so well known in the industrial field.

Because of its low cost of operation this Regal lathe is a profit maker when used for repair and maintenance work, or as a production unit in light manufacturing.

A compact, self-contained unit, with all moving parts enclosed. An eight-speed selective geared headstock with the final drive through helical gears. It's a product of over forty years' experience in the building of precision tools, and a knowledge of your needs. A distinct advance over anything in its class, and a valuable lathe for any shop.

THE R. K. LeBLOND MACHINE TOOL CO.

308 Regal Division, Cincinnati, Ohio

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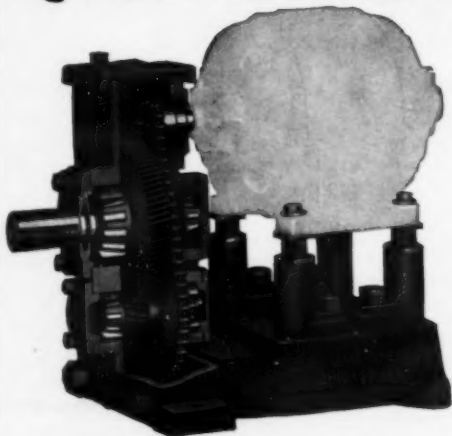
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The Cullman Speed Reducers

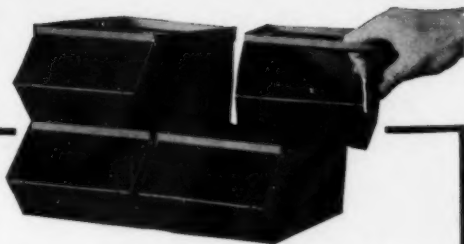


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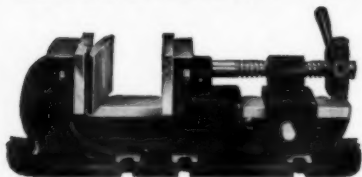
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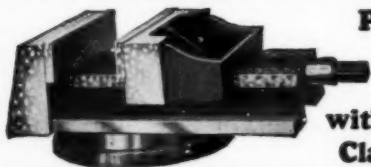
**GEM
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Vise**

THAT will also be your verdict when you know its power, capacity, adaptability and lightning speed of setting. Designed by a mechanic for mechanics. The independent swivel jaw holds taper and irregular work with a bull-dog grip. The Gem saves time in shop and factory. The folder shows its use in drilling and milling operations.

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with Circular
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The Circle Clamp Base Shaper Vise is the same as the Drill Press Vise with the exception of the lugs on the sides and ends. The Circle Base is attached to vise by 4 capscrews which holds it firmly. Base is clamped on top of shaper table by 4 offset clamps furnished for that purpose. Base has center pin on bottom to fit hole in table top and prevents vise from slipping, also providing pivot on which to swing vise to any angle.

See next issue for Square Base Shaper Vise.

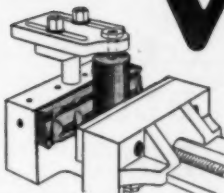
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Classified Finding Index

Angle Plates

Sheldon Machine Co., Railway Exchange Bldg., Chicago, Ill.

Arbor Presses

Atlas Press Co., Kalamazoo, Mich.
Greenard Arbor Presses, Nashua, N. H.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldon Machine Co., Railway Exchange Bldg., Chicago, Ill.
Wilson, K. R., Buffalo, N. Y.

Arbors, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Back Spot Facing Bars and Cutters

Wilder Tool Co., Greenfield, Mass.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.
Sundstrand Machine Tool Co., Rockford, Ill.

Ball Bearings

Boston Gear Works Sales Co., Norfolk Downs, Mass.

Band Saw Machines, for Metal

Armstrong-Bloom Mfg. Co., 841 N. Francisco Ave., Chicago
Jarvis, Inc., Danj. E., Newark, N. J.
Wells Mfg. Corp., Three Rivers, Mich.

Bending Machines, Hand and Power

Armstrong-Bloom Mfg. Co., 841 N. Francisco Ave., Chicago
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Lenthwaite Mch. Co., T. H. 311 E. 47th, N. Y.
Pedrick Tool & Machine Co., Philadelphia

Bins

Stackbin Corporation, Providence, R. I.

Blowers, Electric

Clements Mfg. Co., 6460 Naragansett Ave., Chicago, Ill.
Standard Electrical Tool Co., Cincinnati, O.

Bolt and Nut Machinery

Foots-Burt Co., Cleveland, O.

Boring Bars

Pedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder

Pedrick Tool & Machine Co., Philadelphia

Boring, Drilling & Milling Machines

Defiance Machine Co., Defiance, O.

Boring Machines, Horizontal

Avey Drilling Machine Co., Cincinnati
Pedrick Tool & Machine Co., Philadelphia

Brakes, Hand Truck

Fisher Equip., 1231 Caxton Bldg., Chicago

Brands, Burning

Schwerdtle Stamp Co., Bridgeport, Conn.

Broach Sharpening Machines

Colonial Broach Co., Inc., Detroit, Mich.

Broaches

Colonial Broach Co., Inc., Detroit, Mich.

Broaching Machine Work

Colonial Broach Co., Inc., Detroit, Mich.

Broaching Tools

Colonial Broach Co., Inc., Detroit, Mich.

Buffers, Bench Type

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Buffers, Combination Grinder

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Buffers, Floor Stand

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Buffers, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electrical Tool Co., 149 Broadway, N. Y.

Buffing Wheels

Hunt & Son, C. B., Salem, Ohio

Cap Screws, Hexagon Head

Eico Tool & Screw Corp., Rockford, Ill.

Center Grinders

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Centering Machines

Sundstrand Machine Tool Co., Rockford, Ill.

Centers, Frictionless Live

Precision Gauge & Tool Co., Detroit, Mich.

Centers, Special

Precision Gauge & Tool Co., Detroit, Mich.

Chain Drives

Boston Gear Works Sales Co., Norfolk Downs, Mass.
Cullman Wheel Co., 1369 Altgeld St., Chgo.

Chains, Silent and Roller

Cullman Wheel Co., 1369 Altgeld St., Chgo.

Chamfering Machines, Automatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Chucks, Automatic

Proconier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Collet

Ames Co., B. O., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Hertford Ave., Chicago
Proconier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Drill

Wtco Tool Co., Inc., 894 Johnson Ave., Brooklyn, N. Y.

Chucks, Drill and Tap

Proconier Safety Chuck Co., 14 S. Clinton St., Chicago

Classified Finding Index

Chucks, Magnetic

J. & H. Electric Co., Providence, R. I.

Chucks, Quick Change

Glenner Co., J. G., Detroit, Mich.
Proctor Safety Chuck Co., 14 So. Clinton
St., Chicago
Wilder Tool Co., Greenfield, Mass.

Clutches, Friction

Conway Clutch Co., Cincinnati, O.
Edgemont Machine Co., Dayton, Ohio

Cold Saws

Burke Machine Tool Co., Connecticut, Ohio

Collets

Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Barton Ave.,
Chicago
Wade Tool Co., Waltham, Mass.

Contract Work Wanted

Burke Machine Tool Co., Connecticut, O.

Core Drills

Wilder Tool Co., Greenfield, Mass.

Counterbores and Spot Facers

Glenner Co., J. G., Detroit, Mich.
Wilder Tool Co., Greenfield, Mass.

Couplings, Flexible

Nicholson & Co., W. H., Wilkesbarre, Pa.

Couplings, Friction Clutch

Conway Clutch Co., Cincinnati, O.

Couplings, Shaft

Nicholson & Co., W. H., Wilkesbarre, Pa.

Cranes, Electric Traveling

Box Crane & Hoist Corp., Philadelphia, Pa.

Cranes, Hand Traveling

Box Crane & Hoist Corp., Philadelphia, Pa.

Cranes, Portable

Canton Foundry & Mfg. Co., Canton, Ohio

Cranes, Stationary, Radiating Jib

Box Crane & Hoist Corp., Philadelphia, Pa.

Crank Pin Turning Machine

Fedrick Tool & Machine Co., Philadelphia

Cut-Off Machines

Cincinnati Electrical Tool Co., Cincinnati, O.

Cutters, Keyseating

Davis Keyseater Co., Rochester, N. Y.

Cylinder Boring Machines, Portable

Fedrick Tool & Machine Co., Philadelphia

Demagnetizers

J. & H. Electric Co., Providence, R. I.
Luma Electric Equipment Co., Toledo, Ohio

Dies, Blank and Forming

American Tool Works, Inc., Hartford, Conn.
Rice Tool & Screw Corp., Rockford, Ill.
Wade Tool Co., Waltham, Mass.

Die Sets

Baumbach Mfg. Co., E. A., 1812 So. Kil-
bourne Ave., Chicago

Die Sinking and Engraving Machines

Keller Mech. Eng. Corp., 52A Washington
St., Brooklyn, N. Y.

Die Threaders, Automatic

Townsend Mfg. Co., H. P., Hartford, Conn.

Drill Racks

Peorison Machine Co., Racine, Wis.

Drilling Machines, Automatic

Townsend Mfg. Co., H. P., Hartford, Conn.

Drilling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Avery Drilling Machine Co., Cincinnati
Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, O.

Drilling Machines, Multiple Spindle

Avery Drilling Machine Co., Cincinnati
Foote-Burr Co., Cleveland, O.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Mell Tool Co., 7730 S. Chicago Ave., Chicago
Standard Electrical Tool Co., Cincinnati, O.
Strand Co., N. A., 5001 N. Lincoln St., Chgo
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Electric Tool Co., 140 Broadway, N. Y.

Drilling Machines, Post

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Drilling Machines, Radial

Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Classified Finding Index

Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Vertical

Avey Drilling Machine Co., Cincinnati
Cincinnati Electrical Tool Co., Cincinnati, O.
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Drills, Right Angle

U. S. Electrical Tool Co., Cincinnati, Ohio

Drills, Twist

Cleveland Twist Drill Co., Cleveland, Ohio.

Drive Screws

Klco Tool & Screw Corp., Rockford, Ill.

Electric Blowers

Clements Mfg. Co., 6650 Maragonett Ave.,
Chicago, Ill.
Standard Electrical Tool Co., Cincinnati, O.

Electrical Instruments

Illinois Testing Laboratories, Inc., 150 W.
Austin Ave., Chicago

Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Engravers, Mechanical and Hand

Schwerdtle Stamp Co., Bridgeport, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Etching Machines, Electric

Luma Electric Equipment Co., Toledo, Ohio

Experimental Work

American Tool Works, Inc., Hartford, Conn.

Filing Machines

Wardwell Mfg. Co., Cleveland, O.

Flexible Shaft Machinery

Keller Mech. Eng. Corp., 88A Washington
St., Brooklyn, N. Y.
Mall Tool Co., 7720 S. Chicago Ave., Chicago
U. S. Electrical Tool Co., Cincinnati, Ohio

Furniture, Machine Shop

Western Tool & Mfg. Co., Springfield, O.

Gages, Dial

Ames Co., B. C., Waltham, Mass.
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.

Gages, Spline

Colonial Broach Co., Inc., Detroit, Mich.

Gear Cutters

Chicago Gear Works, 769-773 W. Jackson
Blvd., Chicago

Gears

Boston Gear Works Sales Company, Norfolk
Downs, Mass.
Chicago Gear Works, 769-773 W. Jackson
Blvd., Chicago
Crofoot Gear Corp., C.E., So. Easton, Mass.
Foots Gear Works, Inc., 4731 13th St.,
Chicago, Ill.
Massachusetts Gear & T. Co., Woburn, Mass.

Gears, Herringbone

Crofoot Gear Corp., C.E., So. Easton, Mass.
Foots Gear Works, Inc., 4731 13th St.,
Chicago, Ill.

Gears, Rawhide, Bakelite, Fabrol

Chicago Gear Works, 769-773 W. Jackson
Blvd., Chicago
Crofoot Gear Corp., C.E., So. Easton, Mass.
Foots Gear Works, Inc., 4731 13th St.,
Chicago, Ill.

Grinding Machines, Angle Plate

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Belt

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Wells Sales Corp., 96 Warren St., New York

Grinding Machines, Bench

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Steady Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Mchs., Combination Buffer

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Steady Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Cutter, Reamer and Tool

Jarecki Mch. & T. Co., Grand Rapids, Mich.
LeBlond Mch. Tool Co., B.K., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical

Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Income tax returns reveal mass employment is vital problem.

Even though 1929 was a peak year, ninety-two out of every hundred American families were unable to earn enough to require filing a personal income tax report. They averaged only forty-one dollars a week, while the income of the lucky remaining eight families reached an average of two hundred dollars a week, according to a statement made today by L. C. Harbison, President of Household Finance Corporation, who based his findings upon facts revealed by the latest income tax and census returns.

"In 1929, generally considered as a prosperous year, only eight out of every hundred of the nation's families could be considered really prosperous," said Mr. Harbison. "The other 92 made a nice living so long as no emergencies such as sickness or unemployment arose.

"Back in the 'good old days' our forefathers were not bothered by depressions. When game became scarce in one locality, they merely had to change hunting grounds. But now under our modern industrial system ninety-two out of every hundred families must have an unbroken weekly income, to provide even the necessities of life, food, clothing and shelter.

"For the vast majority of families who must get along on an average of forty dollars a week, it is almost impossible to build up a reserve large enough to tide over emergencies, with the result that local merchants and professional people find themselves carrying thousands of dollars in uncollectable accounts, hurting the manufacturer, the producer and labor alike—a vicious circle.

"American business and industrial leaders are challenged to prevent these recurring cycles of unemployment. Personal financing, now being developed under the Uniform Small Loan Law, enables people to get up to \$300 in cash for paying back rent, grocery, doctor, and other bills, a valuable service particularly to those just resuming work. But there is no substitute for steady wages. If we expect 92 per cent of our families to buy and consume continuously their share of what we produce, we must stabilize their source of income by providing steady work. Mass employment is the next problem to solve in this age of mass production, mass distribution, and mass finance."

Classified Finding Index

Grinding Machines, Die

Jarecki Mch. & T. Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Disc

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Drill

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, External

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Floor

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Flexible Shaft

Keller Mch. Eng. Corp., 58A Washington St.,
Brooklyn, N. Y.
Stoddy Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Internal

Mall Tool Co., 5380 S. Chicago Ave., Chgo.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Center Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Lathe Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Keller Mch. Eng. Co., 58A Washington St.,
Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Standard Electrical Tool Co., Cincinnati, O.
Stoddy Company, Whittier, Calif.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 149 Broadway, N. Y.

Grinding Machines, Snagging

Cincinnati Electrical Tool Co., Cincinnati, O.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Surface

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tap

Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Tool

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tool Post

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Universal

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Hack Saw Blades

Armstrong-Bloom Mfg. Co., 341 N. Francisco
Ave., Chicago
Peerless Machine Co., Racine, Wis.

Hack Saw Machines

Armstrong-Bloom Mfg. Co., 341 N. Francisco
Ave., Chicago
Peerless Machine Co., Racine, Wis.

Hoists, Electric

Box Crane & Hoist Corp., Philadelphia, Pa.

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

Hollow Mills

Wilder Tool Co., Greenfield, Mass.

Hose Couplings

Hunt & Son, C. B., Salem, Ohio

Classified Finding Index

Jigs and Fixtures

American Tool Works, Inc., Hartford, Conn.
Eise Tool & Screw Corp., Rockford, Ill.

Keyseating Machines

Davis Keyseater Co., Rochester, N. Y.

Lag Screws

Eise Tool & Screw Corp., Rockford, Ill.

Lathe Drives

Cullman Wheel Co., 1259 Altgeld St., Chgo.

Lathe Grinders

Standard Electrical Tool Co., Cincinnati, O.

Lathes, Automatic

Townsend Mfg. Co., H. P., Hartford, Conn.

Lathes, Bench

Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bortau Ave., Chicago

Lathes, Engine

Hardinge Brothers, Inc., 1770 Bortau Ave., Chicago
LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Lathes, Extension Bed Gap

LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Lathes, Gap

LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Lathes, Manufacturing

LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Polishing and Buffing

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Lathes, Precision

LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Wade Tool Co., Waltham, Mass.

Lathes, Tool Room

LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkesbarre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid

Nicholson & Co., W. H., Wilkesbarre, Pa.

Machine Screws

Eise Tool & Screw Corp., Rockford, Ill.

Millers, Bench

Hardinge Brothers, Inc., 1770 Bortau Ave., Chicago

Milling Attachments

Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Plain

Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable

Padrick Tool & Machine Co., Philadelphia

Milling Machines, Spline

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Milling Machines, Vertical

Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped

Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

Nut Setters, Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 140 Broadway, N. Y.

Nuts, Machine Screw

Elec Tool & Screw Corp., Rockford, Ill.

Pins, Leader And Dowel

Baumbach Mfg. Co., E. A., 1812 So. Kildes Ave., Chicago

Pipe Bending Machines

Fedrick Tool & Machine Co., Philadelphia

Pipe Plugs, Square Head and Slotted

Elec Tool & Screw Corp., Rockford, Ill.

Planers, Valve Seat, Portable

Fedrick Tool & Machine Co., Philadelphia

Polishing and Buffing Machines

Cincinnati Electrical Tool Co., Cincinnati, O.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Mail Tool Co., 7780 S. Chicago Ave., Chicago
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
Greenard Arbor Presses, Nashua, N. H.
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 Thread miller, Lees-Bradner No. 3 collet type, m. d. latest model nearly new.

FOR SALE BY

McDonald Machinery Co.,

1535 N. Broadway, St. Louis, Mo.

Air compressors, Curtis 10x10 m. d., double cyl.; DeVilbiss 8x6.
 Bolt machines, Landis & Acme 1 hd., 1 1/2" capacity.
 Boring mill, Lucas No. 21 horizontal, 24"; Woods 3".
 Boring mills, 4 Bullard 42" low price.
 Brake, D. & K. 6' 10 gauge, power.
 Cut-off mchs., 4 Davis 6" capacity.
 Drill, Moline 4-spindle and 32-spdl.
 Drill, Foote-Burt 4-sp. No. 2 gang.
 Drill presses, Allen and Sipp 4-spdl., h. s., b. b., power feed to spindles.
 Drill, Cinti-Bick. 3 1/2" s.p.g. box rad.
 Drills, Leland-G 1-sp. h. s., b. b. floor.
 Drills, Sipp 1-spindle, h. s., b. b., H. & W. 2-spdl.; H. & W. 6-spdl.
 Drills, 20", 24", 26" & 28" b. g., & tap.
 Gear hobber, G. & E. 24".
 Grinders, B. & S. No. 2 universal; B. & S. No. 2 surface, complete.
 Grinders, modern internal; Blount 30", wet (3), Heald 8" mag. ck.; Landis No. 1 1/2 int., Landis 16"x42".
 Grinders, St. Louis No. 9; Modern 12"x60" safety, 10 h. p. d. c.
 Grinder, Pratt & Whitney vert. surf.
 Hack saws, 6x6 Racine & Peerless hi speed; Racine 8x8 h. s.
 Keyseater, Mitts & Merrill No. 2.
 Lathes, Hendey 14"x8" q. c. g. yoke head; Davis 22"x10" q. c. g.; Sidney 16"x6" q. c. g.; LeBlond 16"x8" Whitcomb-B. 22"x8" q. c. g.; Monarch 16"x8"; C. & J. 15"x8"; Superior 18"x8"; L. & S. & Cinti. 16"x6", q. c. g.; American 22"x10" q. c. g. geared hd.; American 16"x6" q. c. g.; Lehmann 18"x7" q. c. g.; 40 assorted sizes, quick and loose change gear.
 Lathes, Greaves-Klusman 24"x16" standard change with chuck.
 Milling machines, Van Norman

No. 2 duplex; Ohio No. 20 plain, LeBlond No. 2-H; Brown & S. No. 3; B. & S. No. 3-B pl., s.p.d.; American No. 1 1/2; Kemp Smith No. 1 Cleveland No. 2; Becker No. 25 all plain; Kemp No. 3; Cin. & B. & S. No. 1 1/2; Ohio No. 29 all universal; B. & S. No. 5 vertical; Cincinnati 18" mfg; Becker No. 2-H vertical.
 Milling and drilling mchs., Knight No. 1 1/2 with power feed, vertical.
 Nibbling machine, Gray 30", m. d., 3/4" cap. 1 1/2 h. p., b. b. motor.
 Pipe machine, Curtis 3", motor dr.; Merrill 4"; Curtis 2 1/2" to 12" m. d.
 Planers, Gray 28"x28"x6", 1 head; Cincinnati 36"x36"x10" 2 heads; Pond, 36"x36"x12" table, 18" bed, 2 heads; Flather 24"x24"x6"; Gray 24"x24"x6", 1 head.
 Punch presses, Bliss No. 1 1/2 & Swaine No. 63 straight side geared, Federal Nos. 1, 2, 3 and 4; Bliss No. 19; Swaine No. 37; Sidney No. 2, o.b.l.
 Screw machine, Cleveland 2 1/2" auto.; P. & W. No. 2 1/2 hand; Foster No. 3 hand; Woods No. 2 tilted turret, Milholland No. 4 b.g. hand; Foster No. 7 hand b. g.; W. & S. No. 1.
 Slotters, P. & W. 6"; N. B. P. 10" vert. Shapers, S. M. 16"; 24"; Queen City 24" back geared; G. & E. 16", b.g.; Niles traveling head; Milwaukee 16" b.g.; Walcott 20" b.g.; S. & M. & Ohio 26" b. g.; Ohio 18", Cincinnati 20", b.g.; Rhodes 7"; Queen City 16" b.g.; Potter & J. 16".
 Shears, 60" thrt. rotary slitting. (2).
 Spot welders, 5, 7 1/2, 10, and 20 k. w., special prices.
 Square shears, Niagara 62" power, m. d. 18-ga.; Ohio 18" power 16 gauge.
 Thread miller, Lees-Bradner No. 3 E.
 Turret lathes, Warner & S. No. 2 A.

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FOR SALE BY

Marr-Galbreath Machinery Co.,

Auto. lathes, 14" Fay, belt and m.d.
Air comp., 4½"x4½" & 6"x6" Curtis.
Bender & straight'r, cap. 12" beams.
Blower, No. 40 Connersville.
Blowers, Root No. 4, 500 c. p. m.
Bolt cutter, 1" Wells Bros., m. d.
Boring mill, 30" King; and Bullard.
Boring mill, 2½" bar W. & S. horiz.
Brake or press, 10' Keene toggle capacity 16 gauge.
Brake, 8'x12 ga. power, Chicago.
Brakes, hand, 10' for 18 ga.
Broaching mch., No. 3 LaP. Hudson.
Chuck, Heald magnetic 14½"x40".
Chuck, Walker magnetic, 6" diam.
Cold header, 3" W-F., solid die.
Cold saws, Nos. 11½ and 12 Higley.
Crimping roll, 6½" Robinson, 16 ga.
Drills, 14" T. & F., 2 and 3 spindle.
Drills, multiple 10 and 18 spindle.
Drills, No. 14 Silver, hand post.
Drill, 24" Rockford, g. f. taper att.
Drill, radial, 5' Western, g. b., m. d.
Drill, sensitive radial, 3' Amer. t. a.
Driller, Detroit 5-spindle semi-auto.,
Exhauster, with 1½ h. p. motor, 1/60.
Folders, bench 30" hand (4).
Forging mach., 14" Ajax, steel bed.
Forging mche., 3½" Ajax, steel bed.
Forging mche., 3" Acme steel bed.
Furnace, rotary annealing, 12"x8".
Furnaces, oil tempering, 10"x10"x10".
Gear hobbers, No. 1 Adams "Farw."
Gear hobber 12" S-S "TRO".
Gear and pinion cutter, No. 3 Sloan.
Gear speed reducer, 3 h. p. 50:1.
Grinder, No. 1½ Landis universal.
Grinder, No. 1 LaSalle surface.
Grinder, 18-D. Rowbottom, o. h. b. b.
Grinders, Nos. 1 & 2 Norton, t. & c.
Grinder, disc, 30" Besly No. 17.
Hack saw, 6x6" Marvel, motor drive.
Hack saw, 6"x6", 12"x12" Racine.
Hack saw, Peerless, 6" univ. shaping
Ham., 250 lb. L. Giant belt pwr. new.
Ham., 400 lb. No. 10 Beaud., pwr. b. d.
Hammer, 800 lb. Erie stm. forg., s. f.
Hammer, 1000 lb. Chlg., steam drop.
Hoists, chain, 1 to 8-tons capacity.
Keyseaters, No. 00 & No. 2 Baker.
Keyway cutter, 24" Morton, cap. 2½".
Lathe, jewelers, with collets.
Lathe, 14"x8" Hendey, m. d., t. a.
Lathe, 12"x8" Reed-Prentice geared head, belted m. d.
Lathe, 16"x8" S. Bend, 2 cks. & c/s.
Lathe, 18"x8" L. & S. sel. hd. m. d. t. a.
Lathe, 21"x8" LeBlond, q. c. g., d. b. g., 14" h. s., chuck.
Lathe, 26"x12" 10" Wickes, semi-q. c. g.; h. s., chuck, c/s.

58 Water St., Pittsburgh, Pa.

Miller, No. 28 Ohio pl. auto. feeds.
Miller, plain, No. 1½ Rockford.
Miller, plain No. 3 B. & S.
Miller, plain No. 2 & 2A Rockford.
Miller, No. 3 LeBlond, plain.
Miller, universal No. 4 B. & S.
Millers, vert., Nos. 3 & 5-C Becker.
Miller, auto. No. 2-M P. & J., s. p. d.
Motors, ½, 2, 5, 7½ h. p. 3/60/220 v.
Motor, 5 h. p. 500 v. d. c., 1500 rev.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motor, 20 h. p. 220 v. d. c., 350/1050 rev.
Motor, 25 h. p. slip rg., 3/60/220/1160.
Pipe machines, 10" & 12" Wieland.
Planer, 24"x24"x6" Gray, 1-head.
Planer, 30"x10" W. & P., 2-heads.
Press, 76-D Pexto, d. c., 10,000 lbs.
Press, hyd. 50-ton, Watson-Sullivan
Press, No. 14 Toledo horn.
Press, F-162 Ferracute, foot power.
Presses, No. 3 Bliss, punch type.
Presses, o. b. i., No. 1 Toledo.
Press, Nos. 19, 21, 22 Bliss o. b. i.
Pr., o. b. i. No. 1 VKV; No. 1 Sidney.
Press, o. b. i. No. 3 Niagara, 14" str.
Presses, foot, No. 87 Bliss, pendulum.
Press, No. 6 Perkins, s. s., 4000 lbs.
Presses, No. 87 Niagara, screw.
Punch, s. e., Badger, 7" thrt., 3"x3".
Punch, No. 13 Niagara hand power, 10" tht; wt. 140 lbs.
Punch, Rapid, 20" tht., 1"x3", m. d.
Punch & stake riveter, No. 123-C Toledo boiler makers.
Riveter, Grant No. 101, 5/16" cap., for motor drive.
Riveters, 1-AA, 3-A, 5½-B, hi. speed.
Rolls, hand, 30"x14".
Screw machine, No. 0G B. & S. automatic, belted motor drive.
Shaper, 7" Rhodes, vert. ram, m. d.
Shaper, 16", Cin., b. g., crank.
Shaper, 24" Milwaukee b. g., crank.
Shaper, 25" S. & M., b. g., crk., A-1.
Shear, 42"x8" Niagara, 18" gap.
Shears, 3" & 3" Lennox, throatless.
Shear, foot, 30"x20 gauge.
Shear, squaring, 30"x16 ga., F. & P.
Shear, foot, 36"x16 gauge.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, 36" throat cap. 7/32".
Shear, rotary, 16 ga., Yoder, 24" thr.
Shear, squaring, 8"x14 ga. power.
Shear, squaring, 40"x14 ga. Canton.
Shear, 10"x16 ga. Ohl power.
Slotter, 15" Dill, for motor drive.
Spin. lathe, No. 6 Bliss, c. r., tailstock.
Tappers, No. 2 Garvin, vertical.
Thread. mch., 4" Geometric, s. s. fl. st.
Turret lathe, 26"x7½" h. a., Libby.

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Partial list. Every machine a bargain—write us today!

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American 14"x8', (3).
American 16"x8'; 20"x10', s.p.d. (3).
LeBlond 18"x8'.
Reed-Prentice 20"x10'; 24"x13'; 27"x12', single pulley drive, (4).

GEAR CUTTERS

Barber-Colman No. 12, (6).
Lees-Bradner No. 6-A, (7).
Fellows gear grinders, (3).
Fellows Nos. 6, 61, 65, 615, (8).
Fellows No. 7 high speed, (4).
Gleason 6" 11", 18" (3).
Gleason 25", 2 tool bevel gear.

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Bausch Nos. 1 and 2, round and rectangular heads, (4).
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DRILLS—RADIAL

American 2½' plain, s. p. d.
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American 4' plain, s. p. d.
Hammond 4' plain.
Cincinnati 6' universal.
Bickford 6' universal, s. p. d.
Cinti-Bickford 4' and 6' universal.

FOR SALE BY

The Davis Machinery Company, 1-3-5 So. St. Clair St., Toledo, Ohio

Bolt threader, ¾" Landis dbl. head.
Boring mill, 24" Bullard vertical, new era head.
Drill, 3' Bickford radial, g.b., s.p.d.
Drill, 2-spindle Allen, h. a. b. b.
Drill, Henry & Wright, h. a. b. b.
Drill, Sipp h. a. b. b. (2).
Drill, No. 2 Avey, h. a. b. b.
Drill, 2-spindle, L. & G. h. a. b. b.
Drill, 24" Cincinnati s. h., b. g., p. f.
Drill, 6-sp. Nat. Acme horizontal.
Drill, 6-spd. H. & W., h. a. b. b.
Grinder, No. 2 Gardner disc, comp.
Grinder, No. 4 Gardner disc comp.
Grinder, No. 4 Gardner disc, 15 h. p. motor drive.
Grinder, No. 4 Oliver drill pointer.
Grinder, No. 14 Brown & S., plain.
Grinder, 10"x36" Landis pl. self-con.
Grinder, No. 60 Heald cylinder.
Grinder, No. 2 Oakley univ., comp.
Hack saws, 6x6 Racine & Peerless.
Keyseater, No. 0 Mitts & Merrill.
Keyseater, No. 0 Baker.
Keyseater, No. 3-A Mitts & Merrill.
Lathe, 19"x10" Sidney q. c. g.
Lathes, 14"x8', 16"x8', 18"x8' Hendey q. c. g., taper and collet attachment.
Lathe, 16"x8' Walcott q. c. g. t. att.
Lathe, 16"x8' South Bend, std. c. g.
Lathe, 16"x8' Oliver q. c. g. engine.
Lathe, engine, 18"x7' Lehmann, q. c. g., chuck.
Lathe, 18"x10' American q. c. g., taper and relieving attachments.
Lathe, 18"x8' American q. c. g.
Mill, No. 2 LeBlond univ. index & vertical head, complete.
Mill, No. 1 Kempsmith universal.
Mill, No. 1½ Becker-Brainard universal, complete.
Mill, No. 3 LeBlond, univ., comp.
Mills, No. 1½, No. 2 and No. 3 Cincinnati plain, all geared feeds.
Mill, No. 2 Kempsmith plain.
Mill, No. 0 Steptoe, p. f.
Mill, A. B. Becker vertical.
Mill, Model C. Becker vertical.
Mill, No. 3 B. & S. vertical, s. p. d.
Mill, No. 6 Whitney hand, (6).
Mill, No. 12 B. & S. production, (2).
Miller, No. 1 Toledo b. b. hand (2).
Milling and drilling machine, No. 1½ Knight.
Nibbler, metal No. 1 Campbell.
Oil groover, Fisher No. 1.
Press, No. 1 Toledo o. b. i. flywheel.
Press, No. 3 Bliss, s. b., flywheel.
Press, No. 4 Amer. Can type P.
Press, No. 8 Bliss, bench type (5).
Press, No. 81 Consolidated, bench.
Press, 40 ton Manhattan screw.
Screw machine, No. 6 Warner & S.
Screw machine, No. 7 Foster.
Screw machine, No. 4 Foster.
Screw mche., ½" Cleveland Model A.
Screw mche., 1½" Cleveland Model A.
Shaper, 16" Whipp crank, s. g.
Shaper, 16" & 20" Cin. crank b. g.
Shaper, 16" & 20" Steptoe crank b. g.
Shaper, 20" Ohio crank, b. g.
Shaper, 24" Smith & M. crank, s.p.d.
Shaper, 24" Walcott crank, b. g.
Tappers, No. 1 & No. 2 X Garvin vertical (5).
Threader, ½" Geometric.

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FOR SALE BY

Wachs-Gregg & Co.,

Telephone: Randolph 1822

117 N. Jefferson St., Chicago

Boring machine, Giddings & Lewis
No. 32, with a. c. motor.
Boring mill, Bullard 60".
Drill, Cincinnati Bickford 3' radial,
Drill, W. E. gang 6' radial.
Drill, Foote-Burt 24" heavy duty.
Drill, Harrington, 61 B, multiple.
Drill, Woodward & Rogers 6-spd.
Drill, Pratt & Whitney No. 12 mult.
Fox lathe, Warner & Swasey No. 3.
Grinders, Nos. 4 and 6 Badger disc.
Grinder, No. 6 Modern internal.
Hammer, Mayer 100 lb. upright.

Lathe, Bradford 22"x18".
Lathes, Rockford 15"x6".
Lathe, Whitcomb-Blaisdell 18"x8".
Milling machine, Cinn. No. 2 univ.
Milling mche., Rockford No. 6 plain
Planer, Belmer, 48"x48"x12", 3 hds.
Press, Niagara No. 34 o. b. i.
Press, new Swaine No. 73 dbl. crank
Screw machine, Foster No. 4.
Shaper, Cincinnati 20".
Turret lathe, Pratt & Whitney 8"x44"
Turret lathe, Warner & Swasey
No. 2 A, chucking machine.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

BOLT AND PIPE MACHINES.

1 1/2" Landis double head.
2" Landis double head.
1 1/2" Merriman.

2" National with Landis head,
1 1/2" to 6" Jarecki.
2 1/2" to 8" Williams.

DRILLS.

3" American, triple purpose radial.
14" Mason high speed sensitive.
20" Champion.
22" Barnes back geared.

25" Barnes back geared.
1-spindle Avey.
3-spindle Avey.

GRINDERS.

Wells Bros. universal.

12"x60" Landis universal.

LATHES.

14"x10" Lodge & Shipley, q. c. g.
18"x8" Hendey, motor driven.
20"x10" Bradford.
24"x10" LeBlond.
24"x12" Schumacher-Boye, q. c. g.

30"x15" Lodge & Shipley, q. c. g.
24"x14" Whitcomb-Blaisdell, motor
driven.
36"x15" American.

MILLERS.

No. 1 U. S. hand.
No. 2 LeBlond universal.
No. 2 Ohio single pulley drive.

No. 3 Rockford hand.
No. 3 Brown & Sharpe universal.
No. 5-B Brown & Sharpe.

PRESSES AND SHEARS.

No. 1 1/2 Bliss toggle.
No. 3 Toledo.
Stiles & Parker drawing.
No. 37 Niagara straight back.

No. 24 Toledo cam drawing.
No. 723 Toledo cam drawing.
48" Excelsior shear for No. 16 ga.
36" Bertsch for No. 16, foot power.

SCREW AND TURRET MACHINES.

No. 2 Warner & Swasey hollow hex.
No. 3-A Warner & Swasey.

3"x36" Jones & Lamson.

SHAPERS AND PLANERS.

16" Smith & Mills shaper.
32" Cincinnati shaper.

42"x42"x26" Wheeler, 2 heads.

MISCELLANEOUS.

Bar shear, 5"x1".
Boring mill, 36" Gisholt.
Double end punch, 230" throats,
capacity 1" in 1".
Hammer, 60 lb. Bradley helve.

Hammer, 250 lb. Little Giant.
Hammer, 600-lb. steam.
Punch, No. 14 W. W., 12" throat.
Tapper, auto., Rickert & Schafer.

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Interstate Machinery Co., - - 130-2 So. Clinton St., Chicago, Ill.
 Bending rolls, 12' 4", 6' 8", 5' 10 ga.
 Brakes, 8' 10 ga. D. & K. power.
 Drill, 4-sp. hi sp. Kokomo No. 3 M. T.
 Gang punch, 6' 6", overhanging type
 Millers, No. 2 Brown & Sharpe m.
 d., No. 2 1/2 Ohio universal.
 Oven, Young conv. type 200' long.
 Riveter, No. 4A High Speed.
 Shears, 10' 10 ga. Bertsch motor dr.,
 72" 3/16" Niagara gap, 10' 18 ga.
 Nia. m. d., 1/2" Marshalltown b. d.
 Swaging machine, No. 3 Langelier.

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.
LATHES.

9x14 Porter-Cable (3). | 22"x12' Lodge & S. q. c. g., d. b. g.
 15x8 Carroll-Jamieson q. c. g., d. b. g. | 24"x10' Lodge & Shipley q. c. g.
 18"x 6' Rahn-Larmon. | 30"x14' Bradford.

SCREW MACHINES AND TURRET LATHES.

No. 0 Brown & Sharpe automatic. | 1B Foster, all geared.
 No. 0 Brown & S. semi-automatic. | No. 4 Wood tilted turret g. f. h.
 No. 2 1/2 Garvin p. f. t. | No. 56 National-Acme 4-spindle.

MISCELLANEOUS.

Drill presses, 50 from 10" to 34". | Presses, Nos. 33 and 31 Swaine (8).
 Grinders, Heald 8" rotary. | Shaper, 16" Smith & Mills light.
 Miller, No. 2 Cincinnati universal. | Shaper, 20" G. & E. high duty, b. g.
 Miller, No. 3 Carter & Hakes. | Spot welder, 25 k. w.
 Millers, No. 0 Bristol; U. S. (4).

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.
BRAKE

13 1/2' Geo. A. Ohl press brake. capacity 10 gauge complete with a. c. motors.

BORING MILLS.

24" and 36" Bullard New Era. | 24" Cleveland horiz., rotary table.
 36" and 51" Niles, 2 heads.

DRILLS AND RADIALS

6' American, gear box, sgl. pulley. | No. 5 Fox multiple spindle, 32"x45".
 6' American tr. purp., encl. head. | No. 310 Baker heavy duty.
 4' and 4 1/2' Morris, single pulley.

LATHES.

60"x16" New Haven. | 19"x12' Sidney, q. c.
 36"x22" New Haven, blocks to 44". | 18"x8' Mueller, q. c.
 30"x14" Prentice q. c. | 17"x8' LeBlond, q. c.
 26"x45"x10' McCabe double spindle. | 13"x54' Willard, geared head.
 21"x10' LeBlond, q. c. | 14"x6' Bradford, q. c.

MILLING MACHINES.

No. 2 Cincinnati univ., cone. | No. 3 Cincinnati plain single pulley.
 No. 2 Cinti. vertical, single pulley. | No. 5 Becker-Brainard, cone.
 No. 4 Cinti. vertical, single pulley. | No. 4 Brown & Sharpe plain, late.

PLANERS AND SHAPERS.

26"x26"x10' Gray, 1 head. | 32"x20' American, 2 heads, \$350.
 36"x12' D. & H. openside, 3 heads. | 34" Gould & Eberhardt, b. g.
 45"x10' Belmer, 4 heads. | 24" Potter & Johnston, b. g.

MISCELLANEOUS.

Automatic, No. 2-G Brown & S. | Shear, 52" Niagara pwr., No. 10 ga.
 Grinder, B. & S., planer type. | Slotter, 26" Dill, motor drive.
 Grinder, No. 1 1/2 Cinti. tool & cutter. | Turret lathes, 6" Gisholt, motor dr.
 Pipe machines, 4", 6" and 12". | Welders, spot, No. 5 Toledo &
 Presses, No. 152 Toledo dbl. crank, | Thompson.
 15,000 lbs.

USED AND REBUILT MACHINERY

FOR SALE BY

Strafer Machinery Company,

14th and Provost St.,

Jersey City, N. J.

BORING MILLS

100" Sellers s. p. d. rapid traverse. | 72" Sellers rapid traverse, m. d.
96" Cincinnati s. p. d. rapid traverse. | 51" N.-B.-P. single pulley drive.

GEAR CUTTERS

No. 6 Cincinnati 60"x20" m. d. | No. 5A. Lees-Bradner a. c., m. d.

GRINDERS.

16"x52" Landis self-contained. | 6"x32" Norton, overhead counter.
16"x48" Landis crankshaft. | No. 8 Badger disc, 30" wheel.

KEYSEATERS.

No. 5 Mitts & Merrill belt drive. | No. 3 Mitts & Merrill 16" stroke.

LATHES.

42"—70"x16" Fay & Scott slide gap. | 42"x14" Bridgeford geared head.
24"x18" Prentice g. h. | 21" Gisholt turret lathe.

PLANERS.

48"x48"x16" Pond 4 heads, b. d. | 30"x30"x14" Whitcomb, 2-heads.
36" D. & H. open side 1-head. | 30"x30"x10" Whitcomb, 2 heads m.d.

PRESSES.

400 ton W. S. hydraulic 73"x20". | Ferracute s. r. g. 103 geared.
No. 3½ Bliss double crank, 44". | No. 87 Zeh & Hahneman grd. arch.
No. 4½ Bliss double crank, 32". | S-134 Ferracute 82" bet. uprights.

MISCELLANEOUS.

Beading machine, Bliss. | Chuck jaws set for boring mill.
Bending rolls, 10"x8" drop end, m.d. | Compressor, I.-R. 8"x6" horiz. m.d.
Boring bars, portable, 4"x8". | Pipe machine, 6" Saunders with dies.
Caterpillar ditcher, B. & G. 24"x3". | Wire straightener, core, to 5/16".

FOR SALE BY

A. D. White Machinery Co.,

108 N. Jefferson St., Chicago, Ill.

We can save you money. Send us your requirements.

Automatic, National-Acme 9/16", 3-spindle.
Automatic, Gridley 4-spindle, 1½", belt drive.
Automatic, Gridley 4-spindle, 1½" and 2", motor drive.
Automatic, ¾"-4" Cleveland model A (2).
Automatic, ¾"-1½" Cleveland model A (2).
Bolt cutters, 3½" and 4" Acme, single head.
Drills, 3-spindle Allen and Henry & Wright ball bearing.
Drills, 6-spindle Allen ball bearing, motor drive (2).
Drills, 26" Barnes back geared, sliding head (2).
Drills, 36" Cincinnati back geared, sliding head, tapping attachment.
Grinder, 6"x32" Norton plain cylindrical, very good.
Grinder, 14"x72" Norton plain cylindrical.
Grinder, Walker universal tool with equipment.
Hammer, 60 lb. Bradley cushion helve.
Hammer, 200 lb. Miner & Peck jewelers drop.
Miller, No. 1½B Kearney & Trecker vertical, with rotary table.
Miller, No. 3H LeBlond plain, vertical attachment.
Miller, No. 2B Kearney & Trecker plain, vertical attachment.
Miller, No. 6 Becker vertical rotary, table.
Miller, No. 24 Cincinnati automatic, motor drive.
Miller, No. 4—36" Cincinnati hydromatic, motor drive.
Presses, No. 2 and No. 3 Consolidated inclinables.
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Press, No. 42½ Hamilton double crank, 8" stroke.
Punch and shear, Pels combination punch, shear and bar cutter.
Screw machine, hand, No. Foster, plain and friction head.
Screw machine, hand, 1" capacity, Warner & Swasey, plain head.
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 Keyseater, No. 3 Baker, 3x18 capacity.
 Lathe, 36x18 Niles-Bement-Pond, triple geared, compound rest, chuck jaws.
 Milling machine, 13-B Brown & Sharpe, single pulley drive.
 Miller, slab 20x20x10 Ingersoll.
 Press, No. 5 Bliss-Consolidated, open back inclinable.
 Press, No. 5 American Can geared power.
 Press, No. 23 V. & O. power punch.
 Punch & shear, Style F. Badger single end, 10" throat.
 Screw machine, No. 60G Brown & Sharpe automatic, with motor in base.
 Shaper, 16" Gould & Eberhardt back gear crank.
 Shear, No. 14 Pettingell 30" rotary cutting and trimming.
 Slotter, 10" stroke Newton vertical.
 Turret lathe, 28" Gisholt, 4 1/2" hole.
 Turret lathe, 3-A Warner & Swasey universal.

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| Boring lathe, Johnson journal bearing boring type (2) each | 125. |
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| Drill press, 24" Foote-Burt, heavy duty | 300. |
| Drill press, 24" Snyder, sliding head | 125. |
| Lathe, 37 1/2"x14" Johnson, d. b. g., q. c. g., taper attachment | 1,200. |
| Lathe, 32"x12" Pittsburgh, heavy duty, d. b. g., q. c. g. | 1,000. |
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Bending rolls, Pexto Nos. 418 & 381.
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Boring mills, 24" to 10".
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Brake, No. 618 Chicago hand power.
Brake, 8' & 10' x10 ga. Ohl.
Brake, 10'x3/16" D. & K., motor drive press type.
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Keyseaters, Davis & Catlin.
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Lathe, 16'x8' Sebastian, m. d.
Lathe, 15'x6' Monarch l. c.

Milling machine, No. 2 LeBlond universal, motor drive.
Pipe bender, Pedrick & Smith, m. d.
Pipe mche., 6" Landis, belt drive.
Press, No. 5 Bliss d. c.
Press, No. 91B Toledo d. c.
Press, No. 3 Amer. openback, m. d.
Press, Excelsior arch, 54".
Saw, 6" Economy, motor drive.
Saw, 6x6 Racine.
Shapers, 21" Milwaukee b. g.
Shear, Nos. 848 & 662 Niagara.
Shear, 10'x12 ga. Bertsch.
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Hammer, 1100 lb. N.-B.-P. sgl. fr.
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Shaper, 24" Milwaukee.
Slotter, 36" Newton.
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universal, geared head.

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SHEAR, Ewart & Kutscheid, 5' 14 ga.

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COMPLETE 10" ROLLING MILL.

TESTING MACHINE- 100,000 lb. Tinius Olsen.

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1—Practically New 42" Widened to 54"x42" High x16' Table G. A. Gray Company's Maxi Service Planer with two heads on cross rail, with side heads on front and rear housing, with table widened to 50", direct connected motor drive with 25 HP, 230 volt, direct current reversing motor with General Electric rheostat controller complete with 3 HP Louis-Allis 440 volt, 3 phase, 60 cycle motor for rapid traverse, elevating rail, etc. complete with 21 KW General Electric D. C. generator—Type CD-25, 250 volt, 1750 RPM direct connected to a General Electric 30 HP, A. C. motor wound for 440 volt, 3 phase, 60 cycle. This machine has not had six months' actual use.

14"x6' American Compound Rest, All Geared Head, Quick Change Gear, Engine Lathe, complete, belt driven.

16"x12' Prentice Compound Rest and Taper Attachment, Quick Change Gr., All Grd. Hd., Belt Driven Lathe, complete with regular equipment.

20"x10' Prentice Compound Rest, Quick Change Gear, All Geared Hd., Single Pulley Drive, Belt Driven Engine Lathe.

No. 2-A Milwaukee Plain Constant Speed Drive Milling Mche., belt dr.

No. 4-B Heavy Brown & Sharpe Plain Constant Speed Drive Milling Machine, taper nose spindle, rapid traverse, belt drive.

No. 5-B Heavy Brown & Sharpe Plain Constant Speed Drive Milling Machine, taper nose spindle, rapid traverse, belt drive.

3' Arm American Enclosed Head Plain Arm Radial Drill with tapping attachment, gear box belt drive, with plain box table.

4' Arm Cincinnati-Bickford Single Pulley Drive Gear Box Plain Arm Radial Drill with tapping attachment, belt driven, with plain box table.

This covers but a small part of our stock of used tools. Please

The Strong, Carlisle

1394 W. Third St., Cleveland, Ohio

Attractively Priced

4' Arm Hammond High Speed Sensitive Radial Drill with tapping attachment, motor driven, complete with motor and with universal table.

4' Mueller Plain Arm Radial Drill with tapping attachment, gear box single pulley belt drive.

5' American Triple Geared Plain Arm Radial Drill with tapping attachment, gear box motor drive, complete with motor and plain box table.

6' Mueller Plain Arm Radial Drill with tapping attachment, gear box single pulley belt drive, with box table.

24" Gould & Eberhardt Back Geared Crank Shaper, single pulley belt drive, complete.

30"x30"x12' Gray Spur Geared Planer, two rail heads, motor driven, complete with D. C. variable speed motor.

36"x36"x12' Niles Spur Geared Planer, two rail heads, reversing motor drive—direct connected with D. C. variable speed motor and control.

18" Libby Type "A" Heavy Duty Turret Lathe, motor drive (3).

26" Libby Type "A" Heavy Duty Turret Lathe, motor drive (2).

No. 3-A Warner & Swasey Late Type Steel Covered Ways Hollow Hexagon Turret Lathe with complete chucking equipment, pump, arranged for motor drive, complete with A. C. motor.

60" Colburn Vertical Boring and Turning Mill with two swivel heads, chuck jaws, belt driven.

52" Bullard Vertical Boring and Turning Mill with two swivel heads, with chuck jaws, arranged for motor drive.

No. 32 Lucas Horizontal Precision Boring, Drilling and Milling Machine, 3 $\frac{3}{4}$ " spindle, with bars, belt driven.

No. 12 Barber-Colman Motor Driven Hobbing Mch. complete with mtr.

No. 11 Brown & Sharpe Plain Cylindrical Grinder, (2).

All of these Machines that are belt driven can readily be converted to motor drive machines.

send us a list of your requirements or write for our complete list.

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SPECIAL BARGAINS

LATHES

| | |
|----------------------------------|---------|
| 34"x60" Fitchburg Lo-Swing.. | \$ 250. |
| 9"x18" Porter-Cable | 190. |
| 12"x 5' Vernon, quick change | 250. |
| 13"x 6' Reed, quick change.... | 275. |
| 13"x 6' Willard, semi q. c..... | 225. |
| 16"x 6' Pratt & Whitney | 75. |
| 14"x 6' Flather | 125. |
| 15"x 6' Flather | 150. |
| 15"x 6' American, quick chge. | 225. |
| 17"x 6' LeBlond, rap. prod. | 400. |
| 20"x 8' Hamilton | 500. |
| 25"x10' Whitcomb-Blaisdell | 750. |
| 25"x12' LeBlond 95% new..... | 975. |
| 26"x12' Putnam, arr. for m. d. | 400. |
| 30" Streit Pulley | 350. |
| 36"—44"x12' Springfield, m. d. | 950. |
| 54"x23' Pond, Triple Geared.... | 950. |
| No. 2 Niles-Bement-P. Axle.... | 375. |

DRILLS

| | |
|---|------|
| 22" Barnes All-Geared, S. O. .. | 375. |
| No. 25—24" Foote-Burt | 600. |
| 4-spindle Sigourney | 125. |
| No. 2—8-spindle Western mult. with 18"x18" head | 325. |
| No. 3—12-spdl. Western mult. with 26" round head | 250. |
| No. 26 A. C. Fox 36-spindle 16"x32" head | 950. |
| 8-spindle N. B. P. Arch Bar ... | 300. |
| 4' Bickford Semi-Univ. Rad. | 250. |
| 3' Mueller Radial, m. d. | 750. |
| 24' Gang (Carlton) | 450. |

BORING MACHINES

| | |
|---|------|
| Beaman & Smith Cylinder Boring & Milling Machine...\$ | 500. |
| 2-spdl., 6" bar Esphen-Lucas Horizontal Boring Machine | 600. |
| 8" bar Ingersoll | 450. |

VERTICAL BORING MCHS.

| | |
|-----------------------------------|-------|
| 30" Flather, 30" 3-jaw chuck.... | 600. |
| 34" Colburn | 250. |
| 48" Putnam Car Wheel Borer. | 500. |
| 51" Baush, rapid traverse | 1250. |
| 60" Pittsburgh | 500. |
| 61" Baush, 2 swivel heads..... | 1500. |
| 72" Pond, arranged motor dr. | 900. |

SHAPERS AND PLANERS

| | |
|--------------------------|---------|
| 32" Steptoe Shaper | \$ 150. |
| 36"x36"x16" Ohio | 900. |
| 48"x48"x10' Gray | 1250. |

| | |
|------------------------------|-------|
| 56"x42"x10' Cincinnati | 1500. |
| 72"x60"x10' Cincinnati | 2000. |

MILLERS

| | |
|---|---------|
| No. 14 Rock'd Pl., arr. m. d.... | \$ 475. |
| No. 2 Milwaukee, all auto feeds | 350. |
| No. 5-B Becker, 42"x16"x26".... | 450. |
| No. 2 Brown & S., 28"x64"x18" | 375. |
| No. 2 Pratt & Whitney Lincoln | 75. |
| No. 4 Hendey Lincoln | 175. |
| Beaman & Smith Open Side, 72"x18" table | 600. |
| 24"x13"x30' Ingersoll Slab..... | 750. |
| 45"x38"x174' Ingersoll Slab | 850. |
| 50"x40"x20' Ingersoll Slab..... | 950. |
| No. 3 Beaman & Smith Eng. Frame miller & cross borer, 92" between uprights, table 4'x15' | 950. |
| No. 1 Foster Thread Miller | 180. |
| No. 3-E Lees-Brad. Thd. Mill. | 350. |

GEAR CUTTERS

| | |
|---------------------------------|------|
| 18" Gleason Gear Generator...\$ | 500. |
| 16" Robey Smith Bev. Gr. Gen. | 500. |

TURRET MACHINES

| | |
|------------------------------------|------|
| No. 2—1" Wood Tilted Turret \$ | 250. |
| No. 2—1" Millholland | 250. |
| No. 3—14" Foster | 200. |
| No. 4—18" Millholland | 350. |
| 2"x24" Jones & Lamson | 175. |
| 3"x36" Jones & Lamson | 400. |
| No. 6—2" Brown & Sharpe.... | 400. |
| 24" Steidle, 64" hollow spdl. | 900. |
| 26" Libby, 44" hollow spindle | 750. |
| 24" Davis, p. f. turret | 150. |
| 1"x15" New Britain, 6-sp. auto. | 250. |
| 14" Gridley, 4-spdl. auto | 375. |

GRINDERS

| | |
|--|------|
| 6"x18" Landis Self-Contained..\$ | 475. |
| 12"x36" Fitchburg | 350. |
| No. 10-A Bryant Internal | 350. |
| No. 20 Bryant Deep Hole | 400. |
| No. 23 Brown & Sharpe Gear Cutter Grinder | 100. |
| 12-spindle Defiance Valve..... | 175. |

MISCELLANEOUS

| | |
|-----------------------------|------|
| No. 52 Hendley-Whitemore | |
| Comb. Punch & Shear.....\$ | 135. |
| No. 8 Quickwork Rotary Shr. | 135. |
| 2" Pilton Slotter | 50. |
| 300 lb. Toledo Drop Hammer | 150. |

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At Prices in Keeping with Conditions

No. 30 NATCO MULTIPLE SPINDLE DRILL
32 Spindle No. 2 Taper.....Price \$1475.00

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(Chucking) over 200,000 Serial.....Price \$1125.00

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Power Feed to Cross Slide.....Price \$495.00

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Double Overarm, Late Type, single pulley drive...Price \$895.00

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.....Price \$475.00

No. 2 BROWN SHARPE SURFACE GRINDER
with Magnetic Chuck—motor driven.....Price \$525.00

42"x36"x16' CINCINNATI PLANER
Two Heads on Rail. Power Feed to rail.....Price \$995.00

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AUTOMATICS

| | |
|---------------------------------|-------|
| 11" Cleveland, Model A..... | 300. |
| 11" No. 2G Brown & Sharpe..... | 850. |
| 11" Cleveland, Model A..... | 450. |
| 14" Gridley 4-spindle..... | 850. |
| 24" Nat. Acme 4-spindle..... | 650. |
| 14" Fay, Flanders type..... | 750. |
| No. 5A Potter & Johnston..... | 550. |
| No. 6A Potter & Johnston..... | 650. |
| No. 22 New Britain..... | 450. |
| No. 33 New Britain..... | 450. |
| No. 34 New Britain..... | 650. |
| Hartness tilted & motor..... | 350. |
| 14" Bullard Multi-Au-Matic..... | 3250. |

BULLDOZERS

| | |
|---------------------------------|---------|
| No. 2 Williams White..... | \$ 385. |
| No. 7 Williams White, m. d..... | 1500. |

DRILLS, HEAVY DUTY

| | |
|--------------------------------------|---------|
| 20" Rockford, cap. 3"..... | \$ 350. |
| 20" Barnes No. 320, cap. 1 1/2"..... | 350. |
| 22" Barnes 2-spdl. all geared..... | 1000. |
| 24" Foote-Burt No. 25, cap. 3"..... | 500. |

DRILLS, RADIAL

| | |
|----------------------------------|---------|
| 3' Cincinnati Bickford..... | \$ 900. |
| 3' Western and motor..... | 750. |
| 3' American..... | 750. |
| 4' Mueller, m. d..... | 1200. |
| 4' Western, m. d..... | 900. |
| 4' American, triple purpose..... | 1600. |
| 5' Western, m. d..... | 1100. |
| 6' Western, m. d..... | 1450. |
| 8' Western, m. d..... | 1750. |

GEAR CUTTERS

| | |
|-------------------------------------|---------|
| No. 3 Barber Colman..... | \$ 500. |
| No. 12 Barber Colman..... | 475. |
| No. 18-H Gould & Eberhardt..... | 750. |
| 24"-36" Gould & Eberhardt..... | 900. |
| 14" No. 5A Lees-Bradner..... | 425. |
| No. 2 Bilton automatic millers..... | 250. |
| No. 6 Fellows shapers..... | 500. |
| 16" Cincinnati hobbers..... | 900. |
| 15" Gleason quencher..... | 250. |
| 60"x18" G. & E. auto. spur..... | 650. |
| 64"x20" G. & E. auto. spur..... | 850. |

GRINDERS, CYLINDRICAL

| | |
|-------------------------------------|---------|
| 6"x18" Landis self contained..... | \$ 475. |
| 6"x32" Norton..... | 500. |
| 8"x19" Modern self contained..... | 375. |
| 8"x20" Fitchburg self cont..... | 400. |
| 10"x24" Landis self contained..... | 575. |
| 16"x30" Taft Pierce univ..... | 500. |
| 10"x36" Norton..... | 675. |
| 10"x48" Brown & S. No. 14..... | 450. |
| 12"x60" Modern..... | 500. |
| 14"x72" Norton, electric drive..... | 900. |

GRINDERS, SURFACE

| | |
|------------------------------------|---------|
| No. 10 Blanchard, A. C. mtrs..... | \$1750. |
| No. 16 Blanchard, A. C. mtrs..... | 2500. |
| No. 2 Brown & Sharpe..... | 350. |
| 14"x40" Pratt & Whit. mag. ck..... | 625. |
| 12"x48" Diamond, mag. chuck..... | 1000. |
| 29"x50" Safety Emery Wheel Co..... | 500. |
| 12" Arter rotary..... | 750. |
| 12" Heald No. 235 rotary..... | 500. |
| 16" Heald No. 22 rotary..... | 875. |

GRINDERS, AUTOMOTIVE

| | |
|----------------------------|---------|
| 16"x48" Landis crank..... | \$ 500. |
| 16"x72" Landis crank..... | 750. |
| 10"x82" Landis cam..... | 750. |
| No. 60 Heald cylinder..... | 350. |
| No. 65 Heald cylinder..... | 500. |

KEYSEATERS

| | |
|-----------------------------------|---------|
| 1" No. 0 Mitts & Merrill..... | \$ 225. |
| 1" No. 0 Baker..... | 400. |
| 1 1/2" No. 2 Mitts & Merrill..... | 425. |
| 2 1/2" No. 4 Mitts & Merrill..... | 475. |

(Above items have equipment)

LATHES, ENGINE

| | |
|---|---------|
| 14"x6" Monarch, q. c. g., t. a..... | \$ 300. |
| 14"x5" Lodge & Shipley, q. c. g..... | 200. |
| 15"x6" South Bend, l. c. g..... | 175. |
| 16"x7" Hamilton q. c. g., motor..... | 300. |
| 16"x8" LeBlond, q. c. g..... | 175. |
| 19"x10" Sidney, q. c. g..... | 650. |
| 26"x14" Putnam, q. c. g..... | 750. |
| 29"x12" Schumacher-B., q. c. g..... | 800. |
| 32"x14 1/2" Schumacher-B., l. c. g..... | 500. |
| 36"x18" Schumacher-B., q. c. g..... | 1500. |
| 48"x20" New Haven, q. c. g..... | 1250. |
| 50"x16" Pittsburgh, q. c. g..... | 1500. |

BORING MILLS

| | |
|--|---------|
| 34" Colburn turret..... | \$ 650. |
| 36" Niles..... | 500. |
| 42" Bullard..... | 750. |
| 42" Detrick Harvey, m. d. p. r. t..... | 1250. |
| 50" Bickford..... | 750. |
| 60" Colburn, practically new..... | 3500. |
| 84" Niles..... | 950. |
| 96" Betts..... | 2250. |
| 120" Niles with motors..... | 2500. |
| 24" bar Cleveland, horizontal..... | 975. |

PLANERS

| | |
|----------------------------|---------|
| 20"x30"x6" Gray..... | \$ 650. |
| 32"x32"x12" Niles..... | 750. |
| 36"x36"x8" Gray..... | 1500. |
| 42"x40"x10" New Haven..... | 500. |

SHAPERS

| | |
|---------------------------------|---------|
| 14" Steptoe..... | \$ 175. |
| 16" Smith & Mills, s. p. d..... | 375. |
| 16" Gould & Eberhardt..... | 500. |
| 20" Steptoe..... | 375. |
| 20" Gould & Eberhardt..... | 650. |
| 24" Gould & Eberhardt..... | 750. |

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REMANUFACTURED MONEY BACK (ORIGINATED BY US) MACHINE TOOLS GUARANTEE

REG. U.S. PAT. OFF.

*GEARED HEAD LATHES

- 1-14"x12' LeBlond.
- 1-16"x 6' Lodge & Shipley.
- 1-16"x 8' Hendey.
- 3-16"x10' Lodge & Shipley.
- 1-16"x14' Lodge & Shipley.
- 1-18"-26"x8' South Bend.
- 1-18"x 8' American.
- 2-18"x10' Lodge & Shipley.
- 1-20"x 8' Monarch Timken Bear'g.
- 2-20"x 8' Lodge & Shipley.
- 1-20"x 8' American.
- 2-20"x12' Lodge & Shipley.
- 1-20"-40"x11' Rahn Larmon.
- 1-22"x10' Lodge & Shipley.
- 1-24"x 8' Hendey.
- 2-24"x12' Lodge & Shipley.
- 1-24"x14' Lodge & Shipley.
- 2-24"x18' Lodge & Shipley.
- 1-30"x24' Lodge & Shipley.
- 1-36"x14' Lodge & Shipley.
- 1-34"x24' Lodge & Shipley

*RADIAL DRILLS

- 1-3' Western.
- 1-3' Mueller.
- 1-8' Carlton Motor on arm.
- 1-8' American.
- 2-6' Western Triple Geared.
- 1-8' American Full Universal.

*VERTICAL BORING MILLS

- 1-24" Bullard New Era.
 - 1-36" Bullard New Era.
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- 2-No. 3-A-3" Universal.
- 1-No. 350 Giddings & Lewis.
- 1-No. 5 Defiance.
- 1-6" bar Niles-Bement-Pond.

*SHAPERS

- 2-24" Gould & Eberhardt.
- 1-24" Gould & Eberhardt Invinc.
- 1-28" Columbia.

PLANERS

Belt and Reversing Motor Drive
All Sizes

*MILLING MACHINES

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- 2-No. 1-B Milwaukee.
- 2-No. 2-M Cincinnati.
- 1-No. 2-B Milwaukee, Mtr.-in-Base.

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* These Machines all arranged for single pulley or motor drive

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(Also See Page 88)

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- 2-No. 2 Cincinnati High Power.
- 1-No. 3-B Milwaukee.
- 2-No. 3-B Heavy Brown & Sharpe.
- 1-No. 4-B Heavy Brown & Sharpe.
- 1-No. 4 Cincinnati, Rect. Overarm.
- 1-No. 5-B Heavy Brown & Sharpe.

* UNIVERSAL

- 1-No. 2-M Cincinnati.
- 1-No. 3 Cincinnati High Power.
- 1-No. 4 Cincinnati High Power.

* VERTICAL

- 1-No. 3 Cincinnati High Power Motor-in-Base.
- 1-No. 3 Cincinnati High Power.
- 1-No. 3-B Milwaukee.
- 1-No. 3 Brown & Sharpe.
- 4-No. 4 Cincinnati High Power.
- 1-No. 4 Cincinnati Intermittent Feeds.

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- Single Pulley and Motor Drive
- 2-No. 12 Barber-Colman.
- 2-No. 36-H Gould & Eberhardt.

*TURRET LATHES

- 2-No. 1-A, Warner & Swasey Timken Head.
- 1-No. 2-A W. & S. 3 1/2" cap.
- 2-No. 4-A Warner & Swasey.
- 1-26" Libby-International 7 1/2" hole.
- 2-No. 5-A Potter & Johnston.
- 5-No. 6-A Potter & Johnston.
- 2-14" Fay Automatic.

PLAIN GRINDERS

All Makes and Sizes

UNIVERSAL GRINDERS

- 1-No. 13 Brown & Sharpe.
- 3-No. 14 Cincinnati.
- 1-No. 2 Bath Motor Drive.

PRESSES

- 3-No. 4, No. 5 Federal.
- 6-No. 2 V. & O., O. B. I.
- 6-No. 20 Bliss, O. B. I.
- 2-No. 203 Bliss, 12 1/2" bet. uprights.
- 1-No. 202-C Toledo, 32" bet. upr.
- 1-No. 91-B Toledo, 32" bet. upr.
- 1-No. 203-B Toledo, 32" bet. upr.
- 1-No. 5-C Bliss, 54" bet. uprights.
- 1-No. 307 Bliss, 28" bet. uprights.
- 2-8" Chicago Steel Forming Press.

REAL VALUES

MODERN REBUILT TOOLS

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Nos. 3-A B. & S. Univ., s.p.d., complete.
 No. 2 Cinti. Univ. cone pulley, complete.
 No. 1 Cleveland Univ., single pull, comp.
 No. 5 Cin. Pl. arr. m. d., rect. overarm.
 Nos. 4, 3 & 2 Cinti. Hi-Pwr. Plain, s.p.d.
 Nos. 3-B, 2-B, 2-B S & 1½-B Special
 Milwaukee Plain, s.p.d., dbl. overarm.
 Nos. 3, 2H & 1½ Brown & S. Pl., c.p.

SHAPERS AND PLANERS

28", 24", 20" & 16" Gould & Eberhardt
 High Duty B. G. Crank.
 25" Springfield H.D., B.G., Crk., s.p.d.
 25", 20" & 16" S. & M. h. d., b. g., Crk.
 24" C. & E. Hi-Duty B. G. Cr. s.p. dr.
 20" Cincinnati H. D., B. G., Crank.
 20" S. & M. H. D., B. G. Crank s.p. d.
 16" Queen City Hwy. D. B. G. Crank.
 16" Smith & Mills Plain Crank.
 33"x33"x8" Ohio Planer, 2 heads.
 48"x48"x20" Cincinnati Tu-Speed, 4
 heads, box table.

RADIALS AND UPRIGHT DRILLS

6", 5" & 4" American Tr. Purp. Pl., g. b. d.
 5" & 4" Cin.-Bickford Plain, g. b. d.
 3½" American Triple Geared, Plain.
 3" American B. B. Sens., tap. att.
 36", 32", 24" & 22" Aurora Upright.
 34", 26", 22" Barnes Upright, late type.
 28", 24" & 21" Cincinnati-Bickford Up.
 D2, D3, D4 Colburn Heavy Duty.
 No. 220 Baker Bros. 2-sp. Hwy. Duty,
 (indexing tables).
 2, 3, 4, 6-spindles Leland-Gifford B. B.,
 power feed, No. 2 Morse Taper.
 1, 2, 3 & 4-sp. No. 2 Colburn Mfg., H.D.
 No. 2 Detroit Semi-Auto. Horizontal.
 No. 14 Natco Mult. Spindle, 12 spds.
 No. 1 Bausch Multi. Spindle, 9 spindles.

ENGINE AND TURRET LATHES

12"x6" Hendey yoke head, q. c. (late).
 14"x6" Lodge & Shipley Q.C. (late type)
 16"x12" Amer. H. D., G. H., Q. C.
 18"x10" Lodge & Shipley, Selective Grd.
 Head Quick Change Sgl. Pulley Dr.
 20"x10" American Hi-Duty G. H. q. c.
 24"x16" Lodge & S., q. c. taper att.
 30"x14" Lodge & Shipley, Q. C.
 27"x16" American Crd Hd., q. c., taper.
 36"x20" American Hi-Duty Geared
 Head Q. C., A. C. Motor Drive.
 26" Libby Type "C" Turret.
 Nos. 3-A 2-A & 4 W. & S. Univ. Turret
 Nos. 6 & 9 LeBlond Multi-Cut.
 21"x10" LeBlond Mfg., equipped with
 3-way turret on carriage.

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Nos. 2, 3 & 12 Barber-C. Gear Hob.
 No. 18-H G. & E., H. D. Gear Hobber.
 Nos. 6, 61 & 615 Fellows Gear Shapers.
 6x18", 12"x36", 12"x72" Landis Plain
 10"x36" & 12"x72" Norton Plain.
 No. 70 Heald Int., late type clutch in hd.
 No. 13 B. & S. Auto. Spur & Bevel.
 No. 22-12" Heald R. Surf., 12" dia. m.c.
 No. 2 B. & S. Auto. Surf. Mag. Chuck.
 14" Pratt & W. Vert. Surf., rot. chuck.
 No. 13 Brown & Sharpe Universal.
 Nos. 1½ & 2 Cinti. Univ. Tool & Cutter.
 Nos. 60 & 65 Heald Cylinder.
 84" Diamond H. D. Face, arr. for m. d.

MISCELLANEOUS

Bolt Threaders, 1½" & 2" Landis dbl.sp.
 Boring Mill, 24" Bullard New Era Vert.
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 Press, No. 206B Toledo d. c., grd. Pwr.
 Shear, No. 252 Niagara 52" Pwr. Gap,
 capacity 14 gauge.
 Thread Millers, 6"x14" & 6"x80" P & W

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"Restored" Machines

BORING MILLS

- 1-16" N.-B.-Pond Extra Heavy.
- 1-12" Niles Vertical.
- 1-10-16" Niles Extension.
- 1-100" N-B-Pond Vertical.
- 1-96" Betts Vertical.
- 1-84" Betts Vert. Boring Mill.
- 1-72" N.-B.-P. Vertical.
- 1-72" Sellers Vertical.
- 1-72" King Vert. Boring Mill.
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- 2-44" N.-B.-Pond Vertical.
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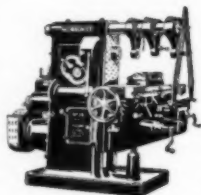
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No. 4 Cincinnati Rectangular Pl.
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No. 3 LeBlond Plain.
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No. 2 Brown & Sharpe Vertical.

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Index of Advertisers

A

| | |
|---|----|
| American Tool Works, Inc..... | 24 |
| Ames Co., B. C..... | 49 |
| Anderson Bros. Mfg. Co..... | 32 |
| Armstrong Bros. Tool Co..... | 35 |
| Armstrong-Blum Mfg. Co..... | 15 |
| Atlas Press Co..... | 30 |
| Automatic Machine & Engineering Co..... | 99 |
| Avey Drilling Machine Company | |
|Inside Back Cover | |

B

| | |
|----------------------------------|-----|
| Baumbach Mfg. Co., E. A..... | 30 |
| Bennett Machinery Co..... | 99 |
| Bernstein & Co., Geo. M..... | 94 |
| Bleas Manufacturing Co., J..... | 83 |
| Boston Gear Works Sales Co..... | 50 |
| Box Crane & Hoist Corp..... | 23 |
| Broadway Machinery Co., Inc. ... | 100 |
| Brotherhood & Son, Percy M. ... | 80 |
| Brown Machinery Co..... | 82 |
| Brownell Machinery Co..... | 81 |
| Burke Machine Tool Co..... | 36 |

C

| | |
|-----------------------------------|----|
| Canton Foundry & Mche. Co.... | 37 |
| Chicago Gear Works..... | 51 |
| Cincinnati Electrical Tool Co.... | 5 |
| Cincinnati Mchy. & Supply Co.... | 95 |
| Clements Manufacturing Co..... | 46 |
| Cleveland Twist Drill Co..... | 53 |
| Colonial Broach Co..... | 29 |
| Conway Clutch Co..... | 9 |
| Crofoot Gear Corp., C. E..... | 49 |
| Cullman Wheel Co..... | 56 |

D

| | |
|--------------------------------|----|
| Davis Keyseater Co..... | 37 |
| Davis Machinery Co..... | 76 |
| Defiance Machine Works..... | 4 |
| Detroit Stamping Co..... | 43 |
| Donahue Steel Products Co..... | 85 |

E

| | |
|----------------------------------|-------|
| Eastern Machinery Co..... | 92 |
| Edgemont Machine Co..... | 39 |
| Eisler Electric Corporation..... | 24-71 |
| Elco Tool & Screw Corporation.. | 20 |
| Esley Machinery Co., E. L. | 82 |
| Estco Tool Co., Inc..... | 45 |
| Excelsior Tool & Machine Co.... | 16 |

F

| | |
|--------------------------------|-----|
| First United Finance Corp..... | 106 |
| Fisher Equipment Co..... | 27 |
| Foot-Burt Co..... | 3 |
| Foot Gear Works, Inc..... | 50 |

G

| | |
|------------------------------|----|
| General Machinery Corp..... | 71 |
| Glenzer Co., J. C..... | 45 |
| Graham Manufacturing Co..... | 59 |
| Grant Mfg. & Machine Co..... | 32 |
| Greenard Arbor Presses..... | 31 |

H

| | |
|-----------------------------------|-------|
| Hardinge Brothers, Inc..... | 25 |
| Hess-Schenck Company | 80 |
| Hill, Clarke & Co., of Chicago... | 88-91 |
| Hunt & Son, C. B..... | 13 |
| Hyman & Sons, Joseph..... | 100 |

I

| | |
|---|-----|
| Illinois Testing Laboratories, Inc. | 42 |
| Indianapolis Machinery & Supply Co..... | 89 |
| Industrial Plants Corporation..... | 101 |
| Interstate Machinery Co..... | 78 |
| Iroquois Machinery Co..... | 96 |

J

| | |
|----------------------------------|----|
| J. & H. Electric Co., Inc..... | |
| Jarecki Machine & Tool Co..... | 7 |
| Jarvis, Inc., Benj. E..... | |
| Johnson & Sons Mchy. Co., Wm. C. | 77 |
| Jones Machine Tool Co..... | 71 |

Index of Advertisers—Continued

K

| | |
|---------------------------------|----|
| Kearney & Trecker Corp..... | 98 |
| Kinsey Co., E. A..... | 98 |
| Klauber Machinery Co., E. L.... | 78 |

L

| | |
|--------------------------------------|-------|
| LeBlond Mche. Tool Co., R. K., | 54-55 |
| Leland-Gifford Co..... | 2 |
| Lewthwaite Machine Co., T. H. | 43 |
| Luma Electric Equipment Co.... | 35 |

M

| | |
|---|----|
| McDonald Machinery Company.. | 74 |
| McKinney Tool & Mfg. Co..... | 8 |
| Mall Tool Co..... | 41 |
| Marr-Galbreath Machinery Co.. | 75 |
| Martin Tool & Die Works, J. E.. | 58 |
| Massachusetts Gear & Tool Co.. | 51 |
| Mid-West Machine Tool & Sup- ply Co..... | 82 |
| Miles Machinery Co..... | 90 |
| Morey and Co. Inc. | 76 |
| Morris Machinery Co., Inc..... | 97 |

N

| | |
|-------------------------------|----|
| Nicholson & Co., W. H..... | 44 |
| Norton-Broadway Mchy. Co..... | 78 |

O

| | |
|-------------------------------|-----|
| O'Brien Machinery Co..... | 83 |
| Osborne & Sexton Mchy. Co.... | 103 |

P

| | |
|---------------------------------|----|
| Pedrick Tool & Machine Co..... | 52 |
| Peerless Machine Co..... | 33 |
| Plunket Machine Co., J. E. | 58 |
| Porter Machine Co., J. E..... | 33 |
| Pratt & Whitney Co..... | 12 |
| Precision Gauge & Tool Co. | |
| Procurier Safety Chuck Co. | 39 |

R

| | |
|--------------------------------|----|
| Randle Machinery Co..... | 81 |
| Reeve-Fritts Company | 83 |
| Reynolds Machine Company..... | 21 |
| Rice, Joseph S..... | 82 |
| Riverside Machinery Depot..... | 96 |
| Russell Machine Co..... | 97 |
| Ruthman Machinery Co. | 46 |

S

| | |
|----------------------------------|-------|
| Schellenbach-Hunt Tool Co..... | 70 |
| Schwerdtle Stamp Co..... | 42 |
| Scott-Bansbach Mchy. Co..... | 72 |
| Sheldon Machine Co..... | 59 |
| Simmons Machine Tool Corp.... | 93 |
| Smith & Mills Co..... | 28 |
| Stackbin Corporation..... | 57 |
| Standard Electrical Tool Co..... | |
|Front Cover | |
| Standard Shop Equip. Co., Inc.. | |
| Stoody Company..... | 17 |
| Strafer Machinery Co. | 79 |
| Strand & Co., N. A. | 41 |
| Strong, Carlisle & Hammond Co. | 86-87 |
| Sun Machinery Co..... | 103 |

Please say "Blue Book" when writing to advertisers.

Index of Advertisers—Continued

| | |
|-----------------------------------|----|
| Sundstrand Machine Tool Co..... | |
| Back Cover | |
| Superior Machine & Eng. Co. | |
| Inside Front Cover | |
| Surplus Material & Mch'y. Co..... | 71 |

T

| | |
|---------------------------------|----|
| Taylor-Hall Welding Corporation | 72 |
| Taylor & Fenn Co..... | 6 |
| Thompson Grinder Co..... | 28 |
| Toledo Machinery Exchange Co. | 84 |
| Townsend Mfg. Co., H. P..... | 31 |

U

| | |
|---------------------------------|-----------|
| United Machinery & Supply Co. | 71 |
| U. S. Electrical Tool Co. | 11 |
| Used and Rebuilt Machinery..... | 71 to 103 |

V

| | |
|---------------------------|--|
| Vim Electric Tool Co..... | |
|---------------------------|--|

W

| | |
|---------------------------------|-----|
| Wachs-Gregg & Co. | 77 |
| Wade Tool Co..... | 29 |
| Walls Sales Corporation..... | 36 |
| Walton Co. | 44 |
| Wardwell Manufacturing Co..... | 14 |
| Wells Manufacturing Corporation | 19 |
| Wertman Machinery Co., M. A. | 74 |
| West Penn Machinery Co. | 73 |
| Western Tool & Mfg. Co..... | 38 |
| White Machinery Co., A. D.... | 79 |
| Whitney Metal Tool Co. | 108 |
| Wigglesworth Machinery Co..... | 83 |
| Wilder Tool Co..... | 38 |
| Wilson, K. R. | 10 |
| Winterer, Herman L..... | 80 |
| Wittek Manufacturing Co..... | 18 |

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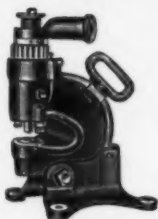
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